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COMMITTEE ON APPROPRIATIONS

Public Works Appropriations

Hearings

1956

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PUBLIC WORKS APPROPRIATIONS FOR 1956

HEARINGS

BEFORE THE

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

EIGHTY-FOURTH CONGRESS

FIRST SESSION

SUBCOMMITTEE ON PUBLIC WORKS APPROPRIATIONS

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JOHN TABER, New York

CARSON CULP, *Staff Assistant to the Subcommittee*

[1] Temporarily assigned.

WESTERN SECTION

PART 1

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WESTERN SECTION

PART 1

UNITED STATES
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PUBLIC WORKS APPROPRIATIONS FOR 1956

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MONDAY, APRIL 18, 1955.

CENTRAL VALLEY DRAINAGE AREA

WITNESSES

FRED G. AANDAHL, ASSISTANT SECRETARY, DEPARTMENT OF THE INTERIOR
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER, BUREAU OF RECLAMATION
C. H. SPENCER, REGIONAL DIRECTOR OF REGION 2, BUREAU OF RECLAMATION, SACRAMENTO, CALIF.
COL. P. D. BERRIGAN, DIVISION ENGINEER, SOUTH PACIFIC DIVISION, SAN FRANCISCO
COL. WILLIAM WHIPPLE, EXECUTIVE FOR CIVIL WORKS, OFFICE OF THE CHIEF OF ENGINEERS
B. J. TOFANI, CHIEF, PROGRAM DEVELOPMENT BRANCH, OFFICE OF CHIEF OF ENGINEERS
COL. A. D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL, OFFICE OF CHIEF OF ENGINEERS
COL. EDMUND KIRBY-SMITH, REPRESENTING THE BUDGET DIVISION, OFFICE OF COMPTROLLER OF THE ARMY
COL. WILLIAM F. POWERS, CHIEF, OPERATIONS DIVISION, CIVIL WORKS OFFICE OF THE CHIEF OF ENGINEERS
HARRY COHEN, ASSISTANT CHIEF, PROGRAM DEVELOPMENT BRANCH, OFFICE OF CHIEF OF ENGINEERS
SIDNEY D. LARSON, DIRECTOR, DIVISION OF BUDGET AND FINANCE, DEPARTMENT OF THE INTERIOR
ALFRED R. GOLZÉ, CHIEF OF THE DIVISION OF PROGRAM COORDINATION AND FINANCE, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR
JOSEPH R. GALLER, BUDGET OFFICER, BUREAU OF RECLAMATION
THOMAS K. VASEY, REGIONAL CONTROL AND FINANCE OFFICER, REGION 2, SACRAMENTO, CALIF.

Mr. EVINS. This is panel No. 3 of the Subcommittee on Public Works. This panel is responsible for the various projects in the western area of our country as well as the areas of Alaska, Hawaii, and Puerto Rico. This morning we will start our hearings with the Central Valley drainage area. We will be pleased to receive your general statement but, before we do so, let us have inserted in the

record at this point the amount specified in the justifications for the proposed Central Valley Basin, and the status of funds made available to the Corps of Engineers and the Department of the Interior in this area in the past.

Central Valley

Appropriation	Corps of Engineers	Interior-Reclamation
General investigations	$290,200	$755,000
Advance engineering and design	250,000	
Construction	8,935,000	27,000,000
Operation and maintenance	1,780,300	5,547,850
Total	11,255,500	33,302,850

CORPS OF ENGINEERS

Central Valley Basin

Project	June 30, 1954		Mar. 31, 1955		June 30, 1955 (estimate)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Flood control:						
Cherry Valley Reservoir	$7,099	$50,899	$3,308	$163,565	0	0
Sacramento River	31,171	2,077,304	741,699	1,988,877	0	$350,000
Multiple purpose: Folsom Reservoir	(−)4,093,844	(−)3,071,665	907,456	2,503,154	0	500,000

(Negative amounts result from adjustment of the unobligated and unexpended balances to reflect loans made during the fiscal year.)

BUREAU OF RECLAMATION

Construction and rehabilitation—Actual unobligated balances June 30, 1954, and Mar. 31, 1955, and estimated, June 30, 1955, Central Valley Basin

Project	Actual unobligated balance June 30, 1954	Actual unobligated balance Mar. 31, 1955	Estimated unobligated balance June 30, 1955, and field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Central Valley, Calif.	$219,392	$5,785,299	$1,540,000	$841,000	$2,381,000
Solano, Calif.	25,642	3,032,454	1,000,000		1,000,000
Total, Central Valley Basin	245,034	8,817,753	2,540,000	841,000	3,381,000

Mr. EVINS. Mr. Crosthwait, you may proceed. Do you have a prepared statement?

GENERAL STATEMENT

Mr. CROSTHWAIT. We have a formal statement.

First, I would like to express the regrets of Commissioner Dexheimer, who had intended to make this statement; but, as you know, we have a few conflicts in meetings of committees and he is to appear this morning before the Interior and Insular Affairs Committee.

Mr. EVINS. We appreciate it is very difficult to be in two places at the same time.

Mr. CROSTHWAIT. This statement, at your request, has been prepared as a joint statement by the Corps of Engineers and the Bureau of Reclamation, covering the general problems in this basin area. This statement which I have has been prepared jointly by the Bureau of Reclamation and the Corps of Engineers and will present the general overall picture of the basin. With that preliminary, I would like either to read the statement or to present it for the record.

Mr. EVINS. You may proceed as you like.

Mr. CROSTHWAIT. The Central Valley Basin of California, as defined herein, is a mountain-enclosed basin some 500 miles in length and 120 miles in width, consisting of the combined watersheds of the Sacramento and San Joaquin River systems and San Francisco Bay drainage and comprising more than one-third of the total area of the State. Land elevations vary from sea level in the tidal areas to about 14,500 feet in the Sierra Nevada on the east. The valley between the ranges, including the Sacramento River Delta outlet to San Francisco Bay, is very fertile when an adequate water supply can be made available. Because there is insufficient rainfall through the growing season to support agriculture, irrigation is a necessity for successful farming. Precipitation in the form of snow on the mountains to the north and east of the valley proper is the chief source of water for the basin.

Two-thirds of the precipitation occurs to the north, in the Sacramento River catchment area, while two-thirds of the irrigable land is in the southern part of the valley. The basic water supply problem of the area thus becomes one of moving large quantities from north to south over distances of as much as 500 miles. The problem of maldistribution of water is further complicated by the necessity of meeting the demands of an intensive agricultural activity and rapidly increasing urban and suburban population. Both are in keen competition for the limited water supply available. For many years irrigated agriculture, based on pumping from underground sources and gravity diversions from unregulated rivers, supported the agricultural economy of the Central Valley Basin. Subsiding ground-water tables and ever-increasing demands have made the problem of maximum utilization of available water supplies critical. Companion problems to meeting the need for water for domestic and irrigation use are the control of floods during heavy winter rains and spring runoff of snowmelts and the provision for commercial navigation facilities.

Agriculture and processing of agricultural products predominate as economic activities throughout most of the basin, but in the San Francisco Bay area there is an intense concentration of industry, and activities associated with the heavy urban development. The population of the basin is over 4 million, about half of which is in the San Francisco Bay area. The problems of the basin include navigation, flood control, and water conservation. Waterways exist that can be used for low-cost waterborne transportation if improved and maintained. The San Francisco Bay area and the lower part of the Sacramento-San Joaquin River system are vital for oceangoing and local commerce.

NAVIGATION

The authorized navigation program of the corps is designed to provide improvement of harbors and channels in the San Francisco Bay and Sacramento-San Joaquin Delta areas, and up the Sacramento

and Feather Rivers as far as navigation is practicable. The present authorized program consists of 20 authorized projects and 3 investigations, on 1 of which work is now in progress. These projects include improvement of 660 miles of navigation channels and improvement of 6 deep-draft harbors and 5 shallow-draft harbors. Navigation improvements presently authorized are essentially for the assistance of commercial navigation. The investigation underway is a comprehensive survey of San Francisco Bay and tributaries covering navigation, flood control, water supply, transportation, and land reclamation.

Completed navigation work by the corps in the Central Valley Basin includes improvement of 350 miles of navigation channels and improvement of 6 deep-draft harbors and 5 shallow-draft harbors. This work has been done on 17 different projects. The most important improvements are located on San Francisco Bay and on San Joaquin River and Stockton deep-water channel.

The balance of the authorized program is intended to complete facilities at several major harbors and complete shallow-draft and deep-draft navigation improvement on Sacramento River. These include the Sacramento River deep-water ship channel and additions to the Stockton deep-water channel.

There are no proposed new navigation starts in fiscal year 1956.

FLOOD CONTROL

The rivers flowing into the Central Valley Basin are fed largely from snowmelt which results in major floods in the spring and early summer, and low flows during the rest of the year. The high populations concentrations and intensive agriculture on the valley floor are vulnerable to flood damage. Prior to the construction of multipurpose storage dams on the main streams, losses caused by frequent recurring floods were extremely high. The flood control furnished by these structures, with levees, channel straightening and dredging, has done much to reduce this waste. The ultimate Central Valley project of the Department of the Interior and the projects of the Corps of Engineers comprise a coordinated basin plan. Their combined storage and river channel capacities should practically eliminate major floods in the basin.

The authorized flood-control program of the Corps of Engineers in the Central Valley Basin is designed to provide flood protection to most of the major valley floor overflow areas of tributary streams, principally by storage reservoirs, and to provide protection on the main stems of the Sacramento and San Joaquin Rivers by a combination of upstream storage, channel improvement, levees, and leveed bypasses. The program includes 18 investigations, on 3 of which work is being actively prosecuted, and 20 authorized projects. These projects include 6 single-purpose flood-control reservoirs, 10 multiple-purpose reservoirs (including Federal contribution to a reservoir to be constructed by local interests), 1,600 miles of levees, and extensive channel improvement and bank protection. With the completion of the authorized projects a number of the tributary areas will remain without needed flood protection, but a good degree of protection will be provided on Sacramento River below Shasta Dam and on San Joaquin River below the mouth of Merced River.

Flood-control work completed by the Corps of Engineers in the Central Valley Basin includes 6 reservoirs for flood control only, 2 multiple-purpose reservoirs, 1,000 miles of levees, channel improvement, and bank-protection work. Major items of completed work are Pine Flat and Isabella Reservoirs and the Sacramento River flood-control project. In addition, Shasta Dam, constructed by the Bureau of Reclamation, provides major flood-control benefits for the Sacramento Valley, as does Friant Dam for the San Joaquin Valley.

The remainder of the authorized program of the Corps of Engineers in the Central Valley Basin consists of 8 multiple-purpose reservoirs, 600 miles of levees, channel improvements, and bank-protection work on 15 different projects on major streams draining the Sierra Nevada, the Sacramento River, and Stony Creek. The Bureau of Reclamation's authorized projects with flood-control benefits are completed.

Projects now actively under construction by the Corps of Engineers consist of two multiple-purpose reservoirs (Folsom Reservoir, and Cherry Valley Reservoir on Tuolumne River, for which a Federal contribution is provided), additional work on the Sacramento River flood-control project, and relatively minor channel improvement and levee work elsewhere.

There are no proposed new flood-control starts in fiscal year 1956.

IRRIGATION

The Bureau of Reclamation's major program in the Central Valley Basin is the conservation and efficient utilization of available water supplies for irrigation and domestic use. As previously mentioned, one of the major problems of the basin is the maldistribution of the available water, and this problem is being answered by an overall basin approach which involves the storage of excess spring flows and their delivery to points of inadequate supply. In the Central Valley Basin this involves transportation of water for distances up to 500 miles and the substitution of water from one source for that of another.

Irrigation operations in the basin under the Bureau of Reclamation started with the construction of the Orland project in 1908 and have continued to the present. Currently, construction of irrigation facilities is continuing on the Central Valley project, which, as of June 30, 1954, had completed facilities to serve over a million acres. The construction program now in progress will continue to bring in additional acreage within the basin. One of the major functions of the Bureau of Reclamation in the Central Valley Basin is the operation and maintenance of the storage and carriage structures which deliver water to distribution systems operated by the water users. Planning and investigations which will lead to additional irrigated acreage are in progress. During fiscal year 1956 work will continue on presently authorized projects with no new irrigation project construction starts scheduled for the area.

POWER

Power generation by the Bureau of Reclamation in the Central Valley Basin is in connection with multipurpose storage dams constructed to conserve water supplies for irrigation and domestic use and for flood control. Power produced at these storage sites is used to

power the pumps of the water carriage system and is sold to preference customers and public utilities The revenues received aid in paying project costs in excess of water users' repayment capacity. High-voltage transmission lines have been constructed by the Bureau of Reclamation from Shasta Dam to the Tracy pumping plant with a connection to Folsom Dam. In the Central Valley Basin generating facilities have been installed by the Bureau of Reclamation at Shasta, Keswick, Folsom, and Nimbus Dams. Energy produced by these plants is transmitted over Bureau lines or wheeled through agreement with the local private utility to load centers. All authorized power generating and transmitting facilities of the Bureau of Reclamation are now complete or under construction. Extensions of existing projects of the Bureau in the basin, now under consideration by the Congress, will add additional generating capacity when constructed.

Power development is authorized at only one Corps of Engineer's reservoir, Iron Canyon. Power generating facilities will probably be built at New Melones and Pine Flat Dams by Federal or local agencies, but are not presently authorized for corps construction. Local interests will construct power facilities at New Don Pedro Dam on Tuolumne River (a dam for which a Federal flood-control contribution is authorized).

OTHER FUNCTIONS

The Corps of Engineers has carried out a program for control of hydraulic mining debris in the Sacramento Valley portion of the Central Valley Basin. The authorized program consists of one investigation on Bear River (not being actively processed at present) and 3 authorized projects, including 1 channel-improvement project and 2 debris storage reservoirs. The objective of the program is essentially to store the mining debris in reservoirs, receiving payment from mining interests for the volume stored. All of the authorized projects for debris control have been completed.

Multipurpose projects constructed by the Bureau of Reclamation provide secondary benefits in the way of recreation facilities and fish and wildlife habitats. These benefits, which are incident to the primary purposes of water conservation and utilization, are of considerable importance in the aggregate. Particularly, the recreation facilities made available by the large reservoirs have become recreatianal centers. For example, the National Park Service recorded over 475,000 recreationists enjoying picnicking, boating, and swimming on the Millerton Lake above Friant Dam during 1954. The provision of services and equipment for these persons and the visitors to other reservoirs in the basin has added a substantial new segment to the economy of the area. Fish facilities and wildlife habitat provisions are an important part of the basin scheme of development.

CONCLUSION

The Central Valley Basin is one of the best examples extant of the operation of the development of an overall master plan for conservation and utilization of area water supplies. Plans for this development involve not only the Department of the Interior and Corps of Engineers but also several agencies of the State of California.

The navigation works provide port improvements at strategic locations throughout the region which can be served by water transportation, and also for an integrated network of waterways and channels in San Francisco Bay and the river system. The flood-control improvements each form a unit in a comprehensive plan. The reservoirs on tributary streams are designed to control rain and snow-melt floods to protect the local areas and reduce flood peaks, so that the levee and channel improvements on the main stems of Sacramento and San Joaquin Rivers can carry the remaining flows safely.

Development plans of the Department of the Interior, coordinated with those of the Corps of Engineers, are based on water in excess of immediate needs being stored for later distribution to water-short areas. Power generated in connection with storage releases is used, in part, to power pumps which are an important link in the water carriage system. Return flows are collected for reuse and every possible advantage is taken of existing water courses and similar topographic features. Each project in the area and each segment of these projects are designed with the overall plan in view and all facilities are coordinated and operated for maximum beneficial result. The completed portions of the project are the base on which additional water utilization projects will be added to achieve this result. All investigation and planning activities are to advance, step by step, the overall plan for the fully coordinated development of the basin resources.

Thank you, Mr. Chairman.

Mr. EVINS. Thank you, Mr. Crosthwait, for a very fine and comprehensive statement.

STATUS OF OVERALL PROGRAM

I note on page 3 of your statement you say there are no proposed new navigation starts in fiscal year 1956; on page 6, you say there are no proposed new flood-control starts in fiscal year 1956; on page 7 you say there are no new irrigation project construction starts scheduled in 1956, and on page 8 you say:

> All of the authorized projects for debris control have been completed.

That would indicate you are pretty well advanced on all phases of the work on the Central Valley project, would it not?

Mr. CROSTHWAIT. It indicates there are no new starts; although there is still a lot of work to be done on the projects that have been authorized and are now in various stages of construction.

RELATIONSHIP BETWEEN CORPS OF ENGINEERS AND BUREAU OF RECLAMATION

Mr. EVINS. What is the general relationship between the programs of the Corps of Engineers and the Bureau of Reclamation, Department of the Interior? What does the State of California propose to do in the way of participating in these programs?

Mr. CROSTHWAIT. On your first question, as has been indicated, we first work on an overall plan for the conservation of the water of the Central Valley. That plan has been worked out jointly between the Bureau and the Corps of Engineers. There has been an agreement

on those phases of the program which they will study and will present, so that we thus avoid any competition between the two agencies on what will be done. There is a clear-cut understanding as to who will handle various phases and they are properly integrated into a program for the Central Valley Basin.

Mr. EVINS. When was this plan initiated? How long has it been underway?

Mr. SPENCER. The California State water plan studies started in 1921, based on a general scheme by Col. Robert B. Marshall prepared prior to 1920. The State engineer prepared—under a mandate from the State legislature—a State water plan, which was adopted in 1933. The State was not able to finance it with their own resources, and, by agreement with the Federal Government, construction of the Central Valley portion that affects the water supply for irrigation and, to a certain extent, flood control, was assigned to the Bureau of Reclamation.

To that we have added investigations, extensions, and plans for importing water into the basin through the succeeding years. We are continuing to make investigations which we plan to discuss in our general investigation program.

Mr. EVINS. Generally you have worked out this plan together and you insist there is no overlapping between the Corps of Engineers and the Bureau of Reclamation?

Mr. SPENCER. No, sir.

Mr. EVINS. What construction work do you do and what does the corps do?

Mr. SPENCER. The Bureau and the corps do construction. The Bureau does not do any purely flood-control nor levee work, but it has built two big dams and reservoirs which have flood-control benefits.

Would it help if I would point those out on the map?

Mr. EVINS. I think it would be quite all right.

Mr. SPENCER. This is Shasta Lake in the north end of the State which controls the headwaters of the Sacramento River. It is located in the mountains, which have heavy precipitation in both snow and rain in the wintertime. Shasta has a storage of 4.5 million acre-feet. It controls floods to a great extent. There are streams which come in below, which are as yet uncontrolled, so they are for the future.

The San Joaquin River which heads in the Sierras in the southeastern part of the basin. The Bureau constructed Friant Dam, which forms Millerton Lake, primarily for irrigation but it does have flood-control benefits too. The Bureau also constructed three transmission lines for the movement of power from Shasta Dam and Keswick, which is a small regulating dam below Shasta, to Tracy switchyard in the delta, formed by the Sacramento and San Joaquin Rivers, to the east of San Francisco Bay.

The Bureau also constructed a canal not shown on this map, 120 miles long, which carries water from the delta, both the natural flow and the stored water from Shasta. This water is delivered to Mendota Pool for use for irrigation, to replace water stored in Millerton Lake. This San Joaquin water is delivered by means of the Friant-Kern Canal to lands as far south as Bakersfield.

Mr. EVINS. The point I was trying to determine is that there is full cooperation between the Bureau of Reclamation and the Corps of Engineers and no overlapping?

Mr. SPENCER. That is correct, but we both do construction.

Mr. CROSTHWAIT. Where construction involves irrigation, or a combination of factors such as irrigation, flood control, and power, it has been authorized to the Bureau of Reclamation. Where it is primarily flood control, or does not relate to irrigation, they have been authorized to the corps.

I wonder if Colonel Berrigan would like to comment on that?

Colonel BERRIGAN. I think Folsom is an example. We are building the dam and the storage, and the Bureau of Reclamation is building the powerhouse and, upon completion of the dam some time in the next year, we will turn over the entire Folsom project to the Bureau for operation.

Mr. EVINS. That was my general understanding and the impression I had reached was that most always the Corps of Engineers does the construction work on power projects and the Bureau of Reclamation does the operation and maintenance.

How do you determine where the Bureau of Reclamation will do the construction?

Mr. CROSTHWAIT. Congress has determined that. If the Congress authorizes the Bureau of Reclamation to build, we handle the construction work. Agreements are arrived at with the corps on the flood-control benefits, if any, and as to how it fits into their overall flood-control plan. On the other hand, Congress has authorized projects for the corps to construct, like Folsom Dam. In addition to assuming operating responsibilities for the dam and powerplant we will construct the irrigation conveyance facilities such as canals and distribution systems.

FEATHER RIVER PROJECT

Mr. EVINS. Will you tell the committee what contemplated programs the State of California has in this area?

Mr. SPENCER. The State of California and its legislature is now considering what is called the Feather River project, a project for the development of storage and power on the Feather River. The Oroville Dam as proposed by the State engineer is higher than Hoover Dam; has more concrete than Grand Coulee Dam; and the dam would have power facilities. The water will be taken down the Feather River into the Sacramento, down the Sacramento to what is called the delta. From there it will be lifted by pumps onto the bench west of the San Joaquin, with a long canal which eventually will extend south to the vicinity of Bakersfield. At the Tehachapi Mountain Range the water will be lifted about 3,000 feet in elevation above the delta, and then carried through tunnels and from the southern end of the tunnels by gravity to supply water to a service area extending to San Diego, near the Mexican border.

Mr. EVINS. What is it going to cost the State of California?

Mr. SPENCER. It is estimated to cost $1.5 billion.

STATUS OF TRINITY RIVER DIVISION

Mr. EVINS. What is the present status of the Trinity River division?

Mr. SPENCER. The Bureau completed a 3-day hearing before the House committee last Friday. The Bureau made a factual state-

ment of what the project would do, where it is located, how it would fit into the Central Valley project for future expansion of the Central Valley project. There are more than a million acres in the Central Valley project from Shasta south to Bakersfield which need additional water. At this hearing the Pacific Gas & Electric Co. presented an offer to engage in a partnership with the Government in which the company would construct the power facilities, powerhouses, transmission lines, and for the purchase of falling water.

Mr. EVINS. Will you point out Trinity River on the map?

Mr. SPENCER. It is not on this map. It is here [indicating], just west of Shasta Dam in the coast range. In fact this whole area here is the Siskiyou Mountains. The valleys are narrow and the gradient of the streams is steep. The Klamath River, which heads in Oregon, enters the Pacific Ocean in the vicinity of Eureka. The Trinity is a small tributary—possibly not so small; it has an average runoff of about 3.3 million acre-feet annually—and it joins the Klamath in this area, about 30 miles from the Pacific Ocean. At this point, due west of Shasta Dam, the Trinity is only about 20 miles from the Sacramento River. It flows at an average elevation approximately 1,500 feet higher than the Sacramento.

The proposal is to store water of the Trinity in the vicinity of Lewiston, due west of Shasta Dam, and then tunnel it through the mountains, drop the water through 1,500 feet of head to the powerplants to help finance the irrigation benefits. It will increase the irrigation supply for the Central Valley project by 700,000 acre-feet of additional water.

Mr. EVINS. When will that work be initiated? I understand the previous Secretary of the Interior made a finding of feasibility and determined how it would work into the integrated plan, but did not get specific congressional authorization.

Mr. SPENCER. That is correct.

Mr. EVINS. The present Secretary of the Interior has deferred or delayed any development or action in connection with it, awaiting specific congressional authorization.

Mr. SPENCER. That is correct.

WATERFOWL MANAGEMENT

Mr. EVINS. What will be the effect of Public Law 674 of the 83d Congress concerning waterfowl management on this project? We will insert a copy of the act in the record at this point.

(The matter referred to is as follows:)

PUBLIC LAW 674—83D CONGRESS

CHAPTER 1012—2D SESSION

H. R. 4213

AN ACT To authorize works for development and furnishing of water supplies for waterfowl management, Central Valley project, California, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the entire Central Valley project, California, heretofore authorized under the Act of August 26, 1937 (50 Stat. 844, 850), and reauthorized under the Act of October 17, 1940 (54 Stat. 1198, 1199), the Act of October 14, 1949 (63 Stat. 852), and the Act of September 26, 1950 (64 Stat. 1036), is hereby reauthorized and declared to be for the purposes set forth in said

Acts, and also for the use of the waters thereof for fish and wildlife purposes, subject to such priorities as are applicable under said Acts.

SEC. 2. The Secretary of the Interior is authorized to construct, operate, and maintain such works on waterfowl management areas and refuges owned and operated by the State of California or the United States as may be necessary or desirable for the development of a water supply by means of wells and the recovery of drainage, and to furnish water available from such works, and water available from Central Valley project sources, for wildlife management purposes substantially in accordance with the recommendations set forth in the report of the United States Department of the Interior entitled "Waterfowl Conservation in the Lower San Joaquin Valley, Its Relation to the Grasslands and the Central Valley Project," dated October 1950, and such works should be developed in cooperation with the State of California.

SEC. 3. The cost of investigation, planning, and construction of the works and the delivery of water as authorized in section 2 of this Act shall not be reimbursable or returnable under the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and the Acts amendatory thereof and supplementary thereto).

SEC. 4. There are hereby authorized to be appropriated such funds, not to exceed $400,000, for construction of necessary works to supply water for State and federally owned and operated waterfowl management areas in the San Joaquin Valley to carry out the purposes of this Act.

SEC. 5. Works constructed under the authorization of section 2, for the purpose of supplying State wildlife management areas with water, shall become the property of the State of California when constructed.

SEC. 6. The Secretary of the Interior is authorized to contract for the delivery of water to public organizations or agencies for use within the boundaries of such organizations or agencies for waterfowl purposes in the Grasslands area of the San Joaquin Valley. If and when available, such water shall be delivered from the Central Valley project at a charge not to exceed the prevailing charge for class 2 water.

Mr. EVINS. Give us a brief statement on that, Mr. Spencer. The law authorized the appropriation of Federal funds for expenditure on State wildlife refuges.

Mr. SPENCER. The effect of this law is reflected in our request in the 1956 fiscal year budget for $70,000 to initiate construction. The Bureau will make a contract with the State of California and the Fish and Wildlife Service, whereby these Agencies will do the construction.

COST ALLOCATIONS

Mr. EVINS. Can you give us the status as to the final cost allocations on your multipurpose projects?

Mr. SPENCER. I wonder if I might ask for a little clarification of that question—the cost allocations of which projects; only the Bureau of Reclamation projects, or the Corps of Engineer projects, or all of the projects in this whole area?

Mr. EVINS. Let us take the Corps of Engineers' Folsom Dam. What is the present status of the cost allocation between you and the Corps of Engineers?

Mr. SPENCER. We are making it now in coordination with the corps.

Colonel BERRIGAN. But on the Folsom project you are basically making it and we are coordinating with the Bureau.

Mr. SPENCER. We are not very far along with it.

Mr. EVINS. You are not in a position at this time to give the committee the status of the cost allocation between the Bureau of Reclamation and the Corps of Engineers on the Folsom project to date despite its early scheduled completion date?

Mr. SPENCER. No. The corps has not completed construction, so we do not know what their final costs are going to be.

Colonel BERRIGAN. That is right.

Mr. AANDAHL. I believe we can give a statement that will be helpful to understand the cost allocation problem. All through the years there have been some elements of difference among the different Federal departments and in Interior among our different power-marketing agencies on the exact formula that should be used for determining the cost allocation. That problem is much more complicated and much more difficult than a person might think.

Starting more than a year ago, in Interior, we brought our four power-marketing agencies together and after several months of exchanges of opinions they arrived at a cost-allocation formula that they could agree on within the Department of Interior. The matter was then brought to the attention of the Corps of Engineers and to the Federal Power Commission, and there was a further coordination of the thinking. I think it was about 5 or 6 months ago that we finally arrived at a cost allocation formula that was approved over the signature of the Assistant Secretary in the Department of the Interior, with a Secretary in the Department of the Army and a Commissioner of the Federal Power Commission. We now have an agreed-upon formula for determining the cost allocation. But even after that formula was agreed upon, there remains a great deal of work before the evaluations can be made and the results worked out for the various projects.

We are following that formula on new projects and new cost-allocation studies, with close coordination in the field between and among the different projects.

There are many projects on which they have not had the time or opportunity to give attention in the light of this new cost allocation formula; but we are working in the direction of having these three departments that are very much concerned about the cost allocation, work out the allocations.

Mr. EVINS. I can appreciate it is a very difficult problem.

Mr. SPENCER. The committee has on page 125 of the project data a statement of the cost allocation of the Central Valley project, and we do have an estimate of $60,502,000 for Folsom Dam. But, as Colonel Berrigan just noted, this is not final because we do not have the final costs.

Mr. EVINS. We will insert that page in the record following Mr. Spencer's statement.

(The matter above referred to is as follows:)

CENTRAL VALLEY PROJECT

Construction costs

Original estimated cost	$170,000,000
Allocation of cost	Unallocated
Present estimated cost	750,499,607
Amount to be allocated	[1] 755,427,000
Allocation of cost:	
Irrigation	395,987,000
Power	281,367,000
Flood control	47,561,000
Navigation	7,618,000
Municipal water	21,499,000
Fish and wildlife	1,395,000

[1] The total project cost, for allocation and repayment study, is $816,111,217 based on an estimate of $755,609,217 for works constructed by the Bureau and an estimate of $60,502,000 for Folsom Dam under construction by the Corps of Engineers. From this total, $60,606,657 for distribution systems covered by direct repayment contracts, and $77,000 for the State of California have been excluded.

Schedule of development

	Fiscal year 1954	Fiscal year 1955	Fiscal year 1956	Ultimate
Irrigation (acres):				
Full	30,953	34,081	34,081	256,981
Supplemental	723,209	757,310	760,474	896,672
Total	754,162	791,391	794,555	1,153,653
Power (kilowatts)	454,000	521,500	629,500	862,500
Average power rates (mills per kilowatt-hour):				
Firm	5.2	4.8	4.9	4.2
Nonfirm	2.5	2.5	2.3	2.2

FRIANT-KERN CANAL AND MADERA CANAL

Mr. JENSEN. How near to completion are your Friant-Kern Canal and the Madera Canal?

Mr. SPENCER. The canals are complete. We still have some distribution systems in the area served by the Friant-Kern Canal.

Mr. JENSEN. Those are your small canals to carry the water from the main canal to the farmers.

Mr. SPENCER. That is correct.

Mr. JENSEN. How much are you asking for in this budget request for irrigation in the Central Valley?

Mr. SPENCER. For the Friant Division, we are asking for $5,917,000. That is primarily for distribution system work and some minor items. I said the main canals are complete. We have problems of slides in cuts on the main canals, which make necessary additional work over and beyond normal maintenance.

Mr. JENSEN. If that $5,917,000 is appropriated, how much will be necessary to complete your distribution system and main canals in the Central Valley?

Mr. SPENCER. Approximately $14,200,000 for the completion of these distribution systems.

Mr. JENSEN. And you expect to complete that one in 2 years?

Mr. SPENCER. Yes, in 2 years.

ADDITIONAL ENERGY REQUIREMENTS

Mr. JENSEN. I was quite interested in the statement of the Army engineers' justification of the Folsom Reservoir on page 23 of the justifications, where it says:

> The additional energy is urgently needed to meet electric-energy requirements in an area of rapidly increasing power demands.

Now I have been advised the Federal Power Commission shows that region 8, which includes the Central Valley area, is expected to have over 1,500,000 kilowatts of reserve capacity above the 1955 peak-load requirements without the capacity of this project. Also, that the Pacific Gas & Electric System estimates its reserve capacity to be nearly 600,000 kilowatts above the 1955 peak-load requirements and has capacity additions scheduled for later years as required. Certainly this does not indicate an urgent need for electric energy. What is your answer to that?

Colonel WHIPPLE. Always in any part of the United States there are some margins of installed capacity. The information we have obtained from the Federal Power Commission and from other sources making market surveys, is that this area is growing very rapidly and even though there is a current margin above peak loads, which there has to be to meet outages and maintenance, there is a very rapidly increasing requirement which present plans could not meet for very long, so that private power companies are scheduling large increases in capacity and this power requirement will meet a need over the life of the project.

When we said "urgently needed," that perhaps does not accurately express it; but certainly there is no permanent surplus over the requirements in spite of the fact there is today a reserve.

Mr. JENSEN. The Federal Power Commission says there is a large reserve capacity of 1,500,000 kilowatts.

Colonel WHIPPLE. I will have to get further information on that then, because we understood this statement in the justification was consistent with their surveys and based on them.

Mr. JENSEN. The thing I am interested in, of course, is getting the facts. I do not think it is necessary to expend a lot of the taxpayers' money to build power facilities and transmission facilities that possibly won't be needed for several years hence. After all, we do not know what is going to happen in the next several years. Things can change awfully quick.

(Note: Additional information supplied may be found on p. 526.)

TECOLOTE TUNNEL

Mr. JENSEN. Now, Mr. Spencer, it is good to see you again. I think about the last time I saw you was when you took me on a long ride from San Francisco down to Santa Barbara to look at the Tecolote Tunnel. A short time before that an explosion or two had occurred in that tunnel and you were at a standstill.

I might tell the chairman and the members of the committee that the tunnel was run through a mountain, about 7 miles long and, as I remember, to bring water from the other side of the mountain into a valley that needed water very badly, and also to the city of Santa Barbara which was paying about one-third of the cost. The original estimate was about $35 million. What is the estimated cost of that project to date?

Mr. SPENCER. $43,816,000, approximately.

Mr. JENSEN. Your water users have signed a contract.

Mr. SPENCER. Yes, sir.

Mr. JENSEN. That is, your water users, your city and landowners have agreed to pay the difference above the original estimate of cost.

Mr. SPENCER. They have signed a contract and they have been aware of it and have told us to go ahead and get it done; that they need the water.

Mr. JENSEN. How is it coming along?

Mr. SPENCER. The tunnel is now completed; the excavation is now complete and the contractors are lining the tunnel.

If the committee wants to take the time, I can expand a little on that.

After you were there, Mr. Jensen, we renegotiated the contract, by which the main contractor brought in a subcontractor, with sufficient financial resources, equipment, and the know-how to do the job, they put in practically a complete new plant and equipment and completed the excavation, in spite of the fact they encountered more water and higher temperatures. Before completion, they were pumping 9,000 gallons per minute with a temperature of 117°.

Mr. JENSEN. You have a ventilating system in there that permitted you to work in the tunnel even at that high temperature?

Mr. SPENCER. In addition to a ventilating system, the contractor put in refrigeration, cooled the air, and about tripled the amount of air forced into the tunnel.

Mr. JENSEN. Yes, sir. I am glad the problem has been solved.

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

Mr. EVINS. We will insert pages 1 and 2 of the justifications on "General investigations," and I will ask Colonel Berrigan to give us a brief statement as to "General investigations" and how it differs from "Advance engineering design."

(The matter above referred to is as follows:)

CENTRAL VALLEY DRAINAGE AREA—JUSTIFICATION OF ESTIMATE

GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. Examinations and surveys

(*a*) *Navigation studies.*—The amount of $2,200 is requested for completion of the study of Oakland Harbor (Fruitvale Avenue Bridge), Calif., during fiscal year 1956.

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
California: Oakland Harbor (Fruitvale Avenue Bridge)	$18,300	$16,100	$2,200	0
Total	18,300	16,100	2,200	0

(*b*) *Flood-control studies.*—The amount of $38,000 is requested for work on four studies in the Central Valley drainage area during fiscal year 1956. This amount will permit progress on three studies and initiation of work on the other.

The tentative allocations by studies follows:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
California:				
Alameda Creek	$101,600	$42,500	$15,000	$44,100
Guadalupe River and adjacent streams	86,000	32,100	7,000	46,900
Sacramento-San Joaquin Delta	100,000	61,700	6,000	32,300
Walnut Creek	29,000	0	10,000	19,000
Total	316,600	136,300	38,000	142,300

(c) Special studies.—The amount of $250,000 is requested for work on the San Francisco Bay and tributaries, California, comprehensive survey during fiscal year 1956.

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
California: San Francisco Bay and tributaries..	$2,500,000	$50,000	$250,000	$2,200,000
Total	2,500,000	50,000	250,000	2,200,000
Grand total, examinations and surveys...	2,834,900	202,400	290,200	2,342,300

Colonel BERRIGAN. General investigations include the preliminary examinations and surveys and review of reports as a result of directives from Congress to study projects. As a result of those reports going to Congress, projects are authorized. These general investigations also include the collection and study of basic data used in our survey studies.

The advance engineering and design money is the money we spend on authorized projects. During this stage we prepare the basic design; we make a more accurate estimate of the cost; and develop the plans and specifications so that the project can be placed under construction.

Mr. EVINS. In this general justification there are four items under the Corps of Engineers—general investigation; advance engineering and design; construction, and operation and maintenance. Under the Bureau of Reclamation, there are only three items—general investigation, construction, and operation and maintenance. The Bureau of Reclamation leaves out advance engineering and design. Do they not have a similar or substitute service under some other name for advance engineering and design?

Mr. CROSTHWAIT. We cover that in our final project plans review under the heading "General investigations."

WALNUT CREEK

Mr. EVINS. The only new project I have noted in the justifications is that of Walnut Creek. What is the need for this project and why can it not be considered as part of the comprehensive San Francisco Bay survey?

Colonel BERRIGAN. The nature of the problems involved in the Walnut Creek Basin, the fact that the Soil Conservation Service of the Department of Agriculture has one of their pilot-plant projects in the Walnut Creek area, and the fact that local interests have developed a comprehensive plan of soil conservation and water retardation for this basin make a separate study desirable.

Mr. EVINS. What do you propose to do on the Walnut Creek project?

Colonel BERRIGAN. We are studying flood-control problems to see if we can determine an economic solution for the flood problems in the Walnut Creek Basin.

SAN FRANCISCO BAY AREA SURVEY

Mr. EVINS. Please describe the operations in the San Francisco Bay area and tell us the status of your agreement with the local organizations and the portion of the cost to be borne by them.

Colonel BERRIGAN. We have an agreement with the local interests, that is, with the State of California, that they will do the things which are their responsibility, such as transportation, that are well identified as a local responsibility, whereas we will do all the things that are identified as a Federal or national responsibility, such as navigation and flood control.

They have been working with us and have expended on their barrier report (Report to the Water Project Authority of the State of California on Feasibility of Construction by the State of Barriers in the San Francisco Bay System) some $500,000 so far. We have on a reimbursement basis done some studies for them that will also be useful to us in a study of the bay. We have made studies of the salt flow through the creeks.

Mr. EVINS. You say San Francisco has appropriated and expended about half a million dollars on the project?

Colonel BERRIGAN. The State of California.

Mr. EVINS. How much do they plan to spend in all?

Colonel BERRIGAN. The legislature has appropriated for this barrier study half a million dollars. The report has been completed and presented to the legislature. They have transportation studies now underway. However, I do not have the cost of these studies, which are not yet complete.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. We will insert in the record a tabulation showing essential information on the request of $350,000 for advance engineering and design.

Now, Colonel Berrigan, let us take up the projects.

JUSTIFICATION OF ESTIMATE

Funds in the amount of $350,000 will be applied to advance engineering and design on 3 flood-control projects in the Central Valley of California, having a total estimated cost of $30,100,000. Two of these projects will be brought to a stage where construction can be initiated.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects (none)				
Flood-control projects, California:				
American River levee	$1,600,000		$90,000	[1] $1,510,000
Black Butte Reservoir	15,500,000	$101,000	50,000	15,349,000
Success Reservoir	13,000,000	401,000	110,000	[1] 12,489,000
Total, flood-control projects	30,100,000	502,000	250,000	29,348,000
Multiple-purpose projects including power (none)				
Re-examination of projects in "Deferred for Restudy" category (none)				
Grand total, advance engineering and design	30,100,000	502,000	250,000	29,348,000

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

BLACK BUTTE RESERVOIR

Mr. EVINS. Tell me why the corps, and not the Interior Department, is constructing a project like Black Butte in which over 75 percent of the benefits are attributable to irrigation.

Colonel BERRIGAN. The project basically was authorized to the Corps of Engineers by the Congress. We reported on the project and pointed out its flood-control and irrigation benefits.

Mr. EVINS. It appears to be an exception to the procedure you outlined previously.

How firm is the location of the actual site of the Black Butte Reservoir?

Colonel BERRIGAN. I believe that the location of Black Butte is almost decided.

Mr. EVINS. The planning report states that two sites are being considered.

Colonel BERRIGAN. The funds recommended for planning will determine the actual site.

Mr. EVINS. Is there any great difference in cost between the two sites?

Colonel BERRIGAN. No, sir.

Mr. EVINS. It would be located on the basis of engineering desirability?

Colonel BERRIGAN. Yes, sir.

Mr. EVINS. Why is the Corps of Engineers restudying the plans on Success Reservoir and Black Butte Reservoir after deferring them for the past several years? You have deferred them from time to time.

Colonel BERRIGAN. Yes, sir. We have had no money for their advanced plans in the limited planning appropriations for recent years.

Mr. EVINS. Are there any local funds required of municipalities for either Success or Black Butte Reservoirs, or the American River levees?

Colonel BERRIGAN. In the case of the American River levees, of course, the local interests will furnish the rights-of-way. Other than that, there is no local contribution. There will be irrigation benefits in Success and, of course, the local interests will contribute to that.

Mr. EVINS. Do you anticipate any opposition on the American River project?

Colonel BERRIGAN. No, sir.

SUCCESS RESERVOIR

Mr. EVINS. The committee has had called to its attention some opposition to the Success Reservoir project.

Colonel BERRIGAN. Yes, sir, there is a local group, essentially people living in the reservoir area, who call themselves the Committee Against the Success Reservoir. However, the State of California water plan and the State water resources board have adopted the project as recommended. The county commissioners of the county in which it is located have adopted it and the downstream interests, particularly the city of Porterville, have endorsed the project.

Construction, Corps of Engineers

CHERRY VALLEY RESERVOIR, CALIF.

Mr. Evins. The first project under "Construction, general," is Cherry Valley Reservoir, Calif. We will insert pages 6, 7, and 8 of the justifications at this point.

(The matter referred to follows:)

Cherry Valley Reservoir, Calif.

Location: On Cherry Creek in the upper Tuolumne River watershed, about 12 miles above the junction with Tuolumne River, in the northwest corner of Yosemite National Park, Calif.

Authorization: 1944 Flood Control Act.

Benefit/cost ratio: 1.2 to 1.0.

Summarized financial data

Estimated Federal cost	$9, 255, 000
Estimated local cash contributions	0
Estimated project cost	9, 255, 000

	Amount	Accumulated percentage of estimated Federal cost
Appropriations to June 30, 1954	$7, 470, 000	
Appropriations for fiscal year 1955	1, 000, 000	
Appropriations to date	8, 470, 000	92
Appropriations requested for fiscal year 1956	785, 000	100
Balance to complete after fiscal year 1956	0	

Physical data

Dam:

Type, earth and rockfill.

Height, 315.0 feet.

Length, 2,500 feet.

Reservoir capacity:	*Acre-feet*
Irrigation, municipal water supply, and power	188, 000
Multiple use including flood control	80, 000
Total	268, 000

Spillway:

Type, side channel.

Capacity (maximum pool), 52,700 cubic feet per second.

Power installation: Not an item of Federal construction or participation.

Status (Jan. 1, 1955): Local interests are responsible for the construction of Cherry Valley Dam and Reservoir. Work was initiated in September 1950 and is now about 46 percent complete. Status of principal features is as follows:

	Percent	Completion schedule
Land acquisition	100	
Relocations	100	
Dam and spillway	36	March 1956.
Diversion and outlet tunnel and shaft	100	
Permanent housing	100	
Eleanor-Cherry tunnel (a power feature exclusively)	0	December 1956.
Entire project	46	Do.

JUSTIFICATION

The project is a unit in the comprehensive plan for flood control and other purposes in the Sacramento-San Joaquin Basin. It is being constructed by local interests with the Federal Government participating in the construction costs to the extent justified by the flood-control service to be rendered by the project. It will assist in providing protection from floods to an area of 140,000 acres of agricultural lands and to several small communities in which damages in 1938 aggregated $2,500,000. It will also improve land use in some of the areas now having a low degree of protection. In addition, it will assist in protecting the industrial and suburban area south of the city of Stockton, and several military installations in the vicinity of Stockton, Calif. During the floods of November and December 1950, the Tuolumne River below the Don Pedro Reservoir caused damages amounting to $633,000; the lower San Joaquin River suffered flood damages of $2,375,000; and the upper delta, $2,268,000. The authorized project with New Don Pedro Reservoir unit, had it been in operation during this flood, would have prevented the flooding of about 8,000 acres of land along the Tuolumne River and the entire $633,000 damage. In addition, it would have greatly reduced the flood damages suffered in the lower San Joaquin River area and in the upper delta. The average annual benefits from the ultimate Federal contribution were estimated in 1948 at $515,000.

On the basis of studies following the unprecedented flood of 1950, total flood control reservations to be operated by local interests under the initial phase of the development, that is, with Cherry Valley Reservoir and other local interests' reservoirs in the Tuolumne River system, were raised from 425,000 to 440,000 acre-feet, thus providing about 75 percent of the accomplishments to be afforded ultimately by new Don Pedro Reservoir. The average annual benefits creditable to this initial development would be 75 percent of the $515,000 benefit estimated for the authorized project, or $386,000.

Fiscal Year 1956: The requested amount of $785,000 will be applied to complete the Federal contribution to non-Federal construction.

Completion of the project as soon as possible is most desirable from a flood control standpoint as well as from the standpoint of additional municipal water supply and power capacity which are urgently needed in the San Francisco Bay area. With the funds requested for fiscal year 1956, the Federal contribution to this phase of the project will be completed.

Mr. EVINS. The Cherry Valley Reservoir, Calif., has an estimated Federal cost of $9,255,000.

The appropriations to date on this project have been $8,470,000, or 92 percent of the estimated cost of completion.

The appropriation requested for 1956 is $785,000, and the justification states that this will complete the project 100 percent.

This project is being constructed by local interests with the Federal Government participating in the construction costs to the extent justified by the flood control service to be rendered by the project.

In that connection, Colonel Berrigan, tell us about the local interests participating in this project.

Colonel BERRIGAN. Basically, through the city and county of San Francisco it is being done by the city. It is part of their overall plan for water supply for the city of San Francisco, as well as for the two irrigation districts. They have the Hetch Hetchy Reservoir already in Yosemite Park, which was constructed somewhere in the period 1915 to 1930. They also have the Don Pedro Reservoir, which is downstream on the Tuolumne River.

We have a contract with the State whereby they will reserve in the final plan a total of 340,000 acre-feet of storage under our control for flood control purposes.

Mr. EVINS. Are there military installations in the area that will be protected by this project?

Colonel BERRIGAN. Yes, sir.

Mr. EVINS. And also industrial developments?

Colonel BERRIGAN. Yes, sir.

Mr. EVINS. Will agriculture also be benefited?

Colonel BERRIGAN. Yes, there are agricultural benefits.

Mr. EVINS. There has been a considerable amount of flood damage in the area prior to your surveys. Can you give us a statement as to the estimates of that damage?

Colonel BERRIGAN. There have been large flood damages on the San Joaquin River.

Back in 1950 they were on the order of $633,000 on the Tuolumne River, and on the San Joaquin $2,375,000, and in the upper delta they were $2,268,000 in the 1950 flood.

Mr. EVINS. I note that you have increased the Federal cost of this project by $255,000 for engineering, supervision, and inspection. Why is that increase required?

Colonel BERRIGAN. Through an inadvertence we previously omitted the cost of inspection, supervision, and engineering from the estimated cost of the project. We are turning over $9 million to the city and county of San Francisco. Our costs for these phases of work are estimated at $255,000.

Mr. EVINS. When do you anticipate this Cherry Valley Reservoir project will be completed?

Colonel BERRIGAN. In about 1 year.

LOWER SAN JOAQUIN LEVEES

Mr. JENSEN. Mr. Chairman, I was handed a memorandum by Congressman Leroy Johnson of California, which I would like to call to the attention of the committee at this time.

Mr. Johnson writes:

Strengthening of levees on lower San Joaquin River (Calif.) was authorized in the Flood Control Act of 1944.

A large part of the work authorized by this act has been completed but some dangerous flood situations are still with us.

The completed works are:

Farmington Dam on Little John Creek (completed).

Merced Stream group (completed).

Cherry Valley Dam (almost completed). Other projects are under study but not as critical as those to be mentioned:

LEVEES OF LOWER SAN JOAQUIN ARE BADLY IN NEED OF STRENGTHENING

This area is lowland, 10 to 12 feet above sea level.

In 1950 and 1952 some bad floods occurred. Southern Pacific Railroad bridge was torn out. Concrete bridge on United States Highway 50 (superhighway) was torn out. The damage was over $7 million, not including damage to crops.

This stretch of the San Joaquin is a bottleneck. Map shows five principal streams that empty into the San Joaquin upstream from this area. These rivers are fed by big snow packs in the Sierra Nevada Mountains. Uncertain melting of snow forces tremendous volumes of water into the lower San Joaquin. The melting cannot be controlled. That flow forces the water up and thus it weakens the levees and a slight break soon causes a tremendous overflow and flood.

$40,000 in planning money was appropriated last year.

The division and district engineers have used this to develop a plan to avoid these floods. Any money given to them could be used to good advantage, after the flood season of this year is over—$250,000 to $500,000 would do wonders to lessen the flood menace, on the San Joaquin.

PUBLIC FEDERAL INSTALLATIONS ARE IN JEOPARDY FROM THESE FLOODS

1. Sharpe General Depot, built before World War II, cost over $50 million, now probably approaching $100 million. It is the largest intransit depot of Army

in the Far West. It could be jeopardized if the San Joaquin runs riot because of weak levees.

2. Annex to Sharpe Depot: Tremendous warehouse facility filled with Quartermaster supplies; medical supply storage for Ninth Army; also for use by civil defense if San Francisco area is attacked.

3. Stockton Naval Annex, branch of Oakland (Alameda) Supply Navy base. It is located on Rough and Ready Island, bordered by the San Joaquin River on two sides, downstream from where big floods occurred in 1950 and 1952. It could be flooded. Before the war it was flooded many times. Great quantities of naval supplies could be damaged should water flood the island.

STATE AND LOCAL INSTITUTIONS COULD BE DAMAGED

Deuel Reformatory for young offenders (17 years and up) was built at cost of $20 million. It is only a short distance over flat ground behind the levees which were flooded in 1950 and 1952.

SAN JOAQUIN COUNTY HOSPITAL

San Joaquin County Hospital had over 1,000 beds. It could be badly flooded from weak levees. Large part of these beds are set apart for Federal use and trained personnel is on hand to care for refugees if an attack should occur in the San Francisco Bay area, the big target center of this area. Civil defense has first option on these beds and is relying on them.

The damage to private property is and was tremendous. Also some very large industrial plants could be damaged. Holly Sugar Refinery; Heinz plant at Tracy, which is being doubled, could be hurt and also others, to say nothing of small towns that could be hurt. Also, it should be borne in mind that these levees were originally built by local money—reclamation district; Sacramento-San Joaquin flood-control area and others spend millions building these levees.

Would you comment on that statement by Congressman Leroy Johnson?

Colonel BERRIGAN. This project is of serious importance, and one that was considered very seriously in the budget. However, it did not meet the criteria set up by the Bureau of the Budget. In fact, it just missed on one of the budget criteria. Therefore, it was not included in the budget.

Mr. JENSEN. How much money did you request?

Colonel BERRIGAN. We gave it serious consideration and included $500,000 in our overceiling request to the Bureau of the Budget.

Mr. JENSEN. You gave it serious consideration?

Colonel BERRIGAN. Yes, sir; we considered it and submitted it to the Bureau of the Budget, but it did not meet the criteria that they set up

Mr. JENSEN. What criteria did it not meet?

Colonel BERRIGAN. Essentially that it was not designed primarily to protect highly developed industrial and urban areas with substantial local contribution. That, basically, it is to protect agricultural rather than urban areas.

Mr. JENSEN. Will you agree that this statement of Mr. Johnson's is correct?

Colonel BERRIGAN. Considering everything the primary benefit is to agricultural areas. The primary benefit dollarwise is the agricultural benefit. The statement is correct that there is a great deal of urban development also in the area. However, overall the main benefit was to agricultural areas.

Mr. JENSEN. How should this be handled? How can they receive the relief? If this situation exists, then certainly somewhere it should be taken care of in some manner or by some means.

Mr. EVINS. A lot of different installations, both Federal and county, are mentioned in the statement.

Mr. JENSEN. Yes; a number of them What is the answer; what can we do? Who can answer that question? If the situation is as grave as Congressman Johnson says it is in this statement, then, certainly, something must be done by someone. I do not know whether this is the proper committee to do it or not, but something must be done.

Colonel STARBIRD. Each year we take every project and take the basic criteria that we have and apply it to the projects. As far as the Corps of Engineers is concerned, we will consider this project every year and consider it along with the Bureau of the Budget. Following your line of thought, the option rests with the committee to consider adding it to the bill.

Mr. JENSEN. I questioned Mr. Johnson about this situation, and he said the high water was eating away at the banks and was eating away and destroying the levees which protect these facilities that he speaks of here. A few hundred thousand dollars now properly used, in his opinion, could save millions and millions and millions of dollars worth of damage to Federal and private property.

If that is the case, then certainly something has to be done, and I am going to ask now, Mr. Chairman, that the engineers take another look at this situation and the condition which is described in this statement and see if we would not be justified in asking for the money that is needed to be used out in this area.

Mr. EVINS. I am just wondering if these gentlemen recognize the desirability of and, perhaps, the need based upon the surveys which have been made, or if they are limited and held down by the Bureau of the Budget specifications or standards under which they approve or recommend these projects and recommend going forward with them.

Colonel WHIPPLE. We are given certain criteria on which to submit these new starts to the Bureau of the Budget.

Mr. EVINS. Do you also have a limit on the amount of funds that you may request?

Colonel WHIPPLE. Yes, sir.

Mr. EVINS. So, basically, the problem is not the need for it, but the Bureau of the Budget criteria and the difficulties of meeting those criteria. Am I correct in that observation, Colonel?

Colonel WHIPPLE. Yes, sir; that is correct. The projects all have to be studied in the light of the criteria which are laid down, and, this year, criteria were established by the Bureau of the Budget, both as to the amount and types of projects which may be included.

Mr. JENSEN. I understand that very well.

The thing that concerns me, of course, is the fact that maybe a year's delay in getting at this thing could bring about a situation that would cost many, many millions of dollars more than it would if we went into it earlier.

With all due respect to the Bureau of the Budget, after all, they make mistakes too, and they are not always absolutely right. There are times when the Congress has found it necessary to allow funds that the Bureau of the Budget did not see fit to approve.

I might tell you that the Interior Department Subcommittee on Appropriations has seen fit to do that on several occasions and felt

perfectly justified in doing it. It has been proven that we were right in so doing, with all due respect to the Bureau of the Budget.

Mr. EVINS. I would suggest that the engineers proceed as you have suggested and give the committee a report at a very early date after going further into this matter. Would you agree to that?

Mr. JENSEN. Yes; I would agree to that, if the Army engineers will look into this matter and possibly give us a report before we mark up this bill, Mr. Chairman.

Mr. EVINS. It will be entirely in order.

Mr. JENSEN. They should also give us an estimate on the amount of money that they think could be spent profitably in the fiscal year 1956 to avoid what frequently is a situation that might be a desperate one if we let it go too long.

SACRAMENTO RIVER FLOOD-CONTROL PROJECT

Mr. EVINS. Colonel Berrigan, we will take up the Sacramento River flood-control project, and insert pages 12, 13, and 14 of the justifications.

(The matter referred to follows:)

SACRAMENTO RIVER, CALIF.

Location: On the Sacramento River and the lower reaches of its principal tributaries in north-central California. The project extends from Collinsville near the mouth of the Sacramento River upstream for a distance of 184 miles.

Authorization: Flood Control Acts of 1917, 1928, and 1941; Rivers and Harbors Act of 1937.

Benefit-cost ratio: None established.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$64,400,000	
Estimated local cash contributions	4,949,400	
Estimated project cost	69,349,400	
Appropriations to June 30, 1954	47,612,000	
Appropriations for fiscal year 1955	3,000,000	
Appropriations to date	50,612,000	79
Appropriations requested for fiscal year 1956	4,000,000	85
Balance to complete after fiscal year 1956	9,788,000	

PHYSICAL DATA

Levees: Average height, 15 feet; length, 980 miles.
Weirs: Five overflow weirs.
Bypasses or floodways: Four bypasses.
Cutoffs: Two river cutoffs.
Channels: Channel enlargement, 15 miles along the Sacramento River.
Pumping plants: Three pumping plants along east levee of Sutter bypass.

	Status, Jan. 1, 1955	Completion schedule
	Percent	
Channels	89	December 1957.
Levees	69	June 1958.
Pumping plants	100	
Entire project	76	Do.

JUSTIFICATION

This project is a coordinated system of leveed natural waterways on the lower reaches of the Sacramento River and tributaries, and in conjunction with weirs, outfall gates, and leveed bypasses, carries the surplus floodwaters of the stream without inundation of valley lands as the river did originally. Completion of the project is urgently needed to provide flood protection to about 800,000 acres of fertile agricultural lands within the existing flood plain; to the cities of Colusa, Marysville, Sacramento, North Sacramento, and to numerous smaller communities; to 2 transcontinental railways; to 1 transcontinental highway; and to State and county highways and feeder railroads. It makes possible the reclamation of lands, formerly in swamp and in uncultivated condition, to a high degree of development when protection against flood hazard is assured. Should a "project design" flood occur, damages estimated at about $105 million would be prevented by the completed project. During the past 47 years a total of 45 damaging winter floods have occurred in the Sacramento River Basin. During the November and December 1950 floods the project prevented about $75 million in flood damage. It is estimated that in improved land values alone, through reduction in the flood hazard, the project has already provided direct benefits of over $65 million. Although the actual damages prevented by the completed portion of the project cannot be determined, it can be definitely stated that the total benefits to date are several times larger than the total expenditures incurred. A fair conclusion concerning the magnitude and economic soundness of the project can be obtained from the fact that the State of California and other local interests have spent to date over $85 million as their share of the project cost, and these same interests expect to spend an additional $19 million toward completion of the project, and about $1 million annually in maintenance of the project work.

Fiscal year 1956: The requested amount of $4 million will be applied to:

Continuation and completion of construction of levees of American River, Natomas Canal, and Arcade and Linda Creeks	$535,400
Initiation of construction and repair of back levees of Reclamation District No. 108, Sycamore Slough to Southern Pacific RR. bridge	376,100
Initiation and completion of repair of levees of Elkhorn, Sutter, and Miner Sloughs, Reclamation District No. 999	370,400
Initiation and repair of east levee of Steamboat Slough on Grand Island	425,800
Initiation and completion of repair of levees of Hastings Tract, Hastings Cut upstream	209,000
Initiation and completion of repair of levees of Ryer Island on Cache Slough—Ferry upstream to Miner Slough	400,000
Initiation and completion of stone protection along Sacramento River, 2d stage of normal bank protection	306,200
Initiation of repair of levees of Sutter Island along Sutter and Steamboat Sloughs	370,000
Initiation of clearing of Feather River from Sutter Bypass upstream	540,100
Engineering and design	231,000
Supervision and administration	236,000
Total	4,000,000

The performance of the work scheduled above is in accordance with a recent understanding with the State of California wherein the cooperation between the State of California and the United States toward completion of the Sacramento River flood-control project is clearly defined. In order to uphold the agreement and to permit economic coordination with the State of California in the matter of acquisition of lands, easements, and rights-of-way, it is necessary that the proposed amount be allotted to do the scheduled work. Performance of the scheduled work for the budget year will meet completion schedules which have been established to minimize further increases in the cost of the project due to price level changes and continuing erosion of the riverbanks.

Mr. EVINS. I will ask you to give us a general statement on the project. As I understand it is not as far advanced as the other projects.

Colonel BERRIGAN. Yes, sir. The Sacramento River flood-control project goes back to 1917. It is one of the oldest, except for the Mississippi River, in which the Federal Government has engaged.

It is approaching completion, and in 1951 we got together with the State reclamation board which is the organization of the State of

California with which we deal on this project and today we have an understanding as to what is required.

Mr. EVINS. The estimated Federal cost of the project is $64,400,000. The appropriations to date have been $50,612,000, representing 79 percent of completion. The appropriation requested for the fiscal year 1956 is $4 million, leaving a balance of about $10 million to complete the project.

It says, however, according to the justifications, that with this $4 million the project will reach a stage of 85 percent of completion, is that correct?

Colonel BERRIGAN. Yes, sir.

Mr. EVINS. Colonel Berrigan, what is the nature of the understanding that the Corps of Engineers has reached with the State of California on this project?

Colonel BERRIGAN. We have made an agreement, or entered into a memorandum of understanding with the State, which is represented by the State reclamation board, in which we outlined the work remaining to be done in order to complete the project and to turn it over to the State for maintenance.

Mr. EVINS. To what extent have you turned over maintenance of various sections to the State?

Colonel BERRIGAN. We have turned over some 710 miles of levees to the State for maintenance, out of a total of 980 miles.

Mr. EVINS. How many miles?

Colonel BERRIGAN. 980 miles.

Mr. EVINS. How many miles does the Corps of Engineers maintain?

Colonel BERRIGAN. We are really not maintaining any of the levees. Some of the banks are deteriorating because we have not placed revetments on them, and when we get to them it is sort of a deferred maintenance job.

Mr. EVINS. How much annual Federal maintenance cost will be eliminated upon completion of the project.

Colonel BERRIGAN. We assume the cost of the dredging which is a part of the maintenance. We have to dredge only the north channel to keep the channel capacity. That costs about $100,000 a year although we do not do it every year, and we assume now the deterioration of the banks. That is costing us on the order of $100,000 a year.

Mr. EVINS. From my study of the matter, it is my understanding that due to long construction periods the uncompleted portions which are being maintained at public expense are proving costly. The committee, in the past, has requested that this work be accelerated. Is it going at a rather rapid pace?

Colonel BERRIGAN. Yes, sir; it has in the last 2 years been going at a rapid pace. Appropriations have been 3 or 4 times as much as they were, say, in 1952 and 1953.

Mr. EVINS. Will you give a brief explanation of the project and point it out to us on the map and discuss it? If you will do that I think it might help the understanding of the committee.

Colonel BERRIGAN. Well, the project starts at about this point [indicating], and runs all the way down [indicating]. It consists of these levees marked some in blue, and some in red.

You may recall that in the old days in mining by hydraulic methods they filled up the lower Sacramento River in this area [indicating]. The river was so filled up that the Sacramento Valley was badly flooded.

In 1917 it became a Federal project.

The Sacramento River has so lost its capacity that very often you must divert it into bypasses and run it down in these channels [indicating], such as the Yolo bypass and others.

The levees sit right on the riverbank of the Sacramento and the big floods in the winter go through the Sutter and Yolo bypasses. During the summer they have very little water down there, and it does not go through the bypasses.

The levees were built by the local interests right on the riverbanks, and one of the big problems is protecting them. In the lower section we have a problem with the foundations. This is due to an underlying strata of very weak peat in the delta area.

Mr. EVINS. Thank you, Colonel Berrigan.

FOLSOM RESERVOIR, CALIF.

Mr EVINS We will take up the Folsom Reservoir project now, and, Mr. Reporter, we will insert pages 22, 23, and 24 of the justifications in connection with this project in the record at this point.

(The matter referred to is as follows:)

FOLSOM RESERVOIR CALIF.

Location: On the American River a tributary of the Sacramento River, 30 river miles above the mouth, about 1 mile below the confluence of the north and south forks of the stream, 20 miles upstream from the city of Sacramento, Calif., and 2½ miles upstream from the town of Folsom, Calif.

Authorization: I. Flood Control Act of December 22, 1944 (Public Law 534), HD 649/78/2. II. Public Law 356, October 14, 1949.

Benefit/cost ratio:1.6 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$64,819,000	
Estimated local cash contributions	None	
Estimated project cost	64,819,000	
Appropriations to June 30, 1954	46,169,000	
Appropriations for fiscal year 1955	14,500,000	
Appropriations to date	60,669,000	94
Appropriations requested for fiscal year 1956	4,150,000	100
Balance to complete after fiscal year 1956	0	

PHYSICAL DATA

Dam:

Type: Concrete gravity river section with earthfill wing and auxiliary dams.

Height: 340 feet maximum.

Length: 26,730 feet including auxiliary dam and dikes.

Spillway:

Type: Gate controlled, concrete ogee weir with stilling basin and flip bucket.

Capacity: (Spillway flood pool) 567,000 cubic feet per second.

Reservoir capacity:	*Acre-feet*
Flood control, irrigation, municipal use and power	400,000
Irrigation, municipal use and power	512,000
Minimum pool	88,000
Total	1,000,000

Power installation: Ultimate: 3 units, total 162,000 kilowatts.

NOTE.—The power installation is under construction by United States Bureau of Reclamation. Cost of intake facilities and a portion of tailrace channel only, are included in above estimate.

Status (Jan. 1, 1955)	Percent	Completion schedule
Entire project	88	Entire project, June 1956.
Acquisition of reservoir area	100	Land acquisition, June 1955.
Relocations	99	Relocations, August 1955.
Construction including 5 of the earthfill dikes, the Government administration buildings, the diversion tunnel, the foundation excavation for the main dam, and Mormon Islands auxiliary dam.	100	Water in reservoir, start January 1955.
		Dam closure, February 1955.
		Power on line, (USBR schedule):
Construction of dam and appurtenances, including wing dams, dikes, and power intake facilities.	86	1st unit, 54,000 kilowatts, Feb. 15, 1955.
Procurement of 16 slide gates for flood sluiceways	100	2d unit, 54,000 kilowatts, Apr. 1, 1955.
Procurement of 8 tainter gates and hoists	99	
Excavation of tailrace for powerplant	100	3d unit, 54,000 kilowatts, May 15, 1955.
Construction of pumping plant	99	
Installation of pumping-plant equipment	100	

JUSTIFICATION

The project is a high priority key unit in the comprehensive plan for flood control and other related purposes in the Sacramento-San Joaquin Basin. Completion, which is scheduled for June 1956, will provide much needed protection to the city of Sacramento and the adjacent metropolitan area (with a combined population of some 200,000) against floods originating on the American River, and, in conjunction with a proposed 7-mile upstream extension of the existing right bank levee, to about 10,000 acres of agricultural lands and suburban residential areas located on the right bank of the American River. Many industries, largely agricultural crop processing plants, are located in the area to be protected. The project will also prevent disruptions of highway and truck travel between rail centers in Sacramento and adjacent military installations at Mather and McClellan Air Force Bases and the Sacramento Signal Depot. The project would have, without any supplemental levee construction, prevented about 90 percent of the approximately $3 million damages suffered during the floods of November and December 1950. In the event of the occurrence of the project design flood, it is estimated that damages in the amount of $55 million under present conditions of development, would be prevented. The USBR is currently constructing a powerplant, immediately below the dam, with a capacity of about 162,000 kilowatts for the generation of about 500 million kilowatt-hours of electrical energy per year. The additional energy is urgently needed to meet electric energy requirements in an area of rapidly increasing power demands. It will also provide about 500,000 acre-feet of new water per year on the average which will be utilized for domestic purposes and as an irrigation supply to develop a large area now without irrigation water or with a deficient supply, and will also provide substantial benefits to fish conservation because of regulated and increased low-water flows. Average annual benefits are estimated at $4,450,000.

Fiscal year 1956: The requested amount of $4,150,000 will be applied to:

Continuation of construction of main dam and appurtenances including installation of gantry crane, penstock fixed wheel gates, and tainter gates	$3, 617, 100
Completion of construction, improvement, and repair of access roads	55, 000
Completion of grading and landscaping, and water-supply and sanitary facilities	31, 700
Completion of relocations	5, 000
Initiation and completion of precipitation and temperature stations, evaporation stations, and radio transmission for precipitation stations	47, 300
Malaria control (reservoir)	34, 700
Engineering and design	116, 200
Supervision and administration	243, 000
Total	4, 150, 000

With the funds requested for fiscal year 1956 construction of the entire project will be completed.

Mr. EVINS. You are requesting $4,150,000 to complete the project. We will ask Colonel Berrigan to give us a general statement on the

Folsom Reservoir project. I think, Colonel, we will do that by having you point it out on the map to us if you will, please.

Colonel BERRIGAN. Folsom Reservoir is located just upstream on the American River from Sacramento, Calif. [indicating]. The American River joins the Sacramento River just at the north portion of the city of Sacramento. It controls both the north, the south, and the middle forks of the American River, and has tremendous flood control benefits, particularly in this rapidly growing section of Sacramento.

It is a joint project with the Bureau of Reclamation. We are building the dam, and the Bureau of Reclamation is building the powerhouse.

We have made closure of the dam, and the Bureau of Reclamation is in the process of completing the roads now, and within 2 weeks, I believe, the Bureau will generate the first power from the powerhouse. However, the dam is not entirely complete. In the case of the spillway we are still pouring concrete on it.

We have not completed all of the clearing, or all the grouting and other things that go into the dam. It will be completed within a year and turned over to the Bureau of Reclamation.

Mr. EVINS. The appropriations requested for 1956 are $4,150,000 which you say will bring the project to 100 percent completion.

Colonel BERRIGAN. Yes, sir. We have reviewed our estimate, and have taken up with the Bureau of the Budget the matter of reducing the cost by $1½ million, thereby reducing the requirement for the next fiscal year by $1½ million.

Mr. EVINS. In the planning report on this project you show a contingency of $2,053,000 for construction. This appears to be unusually large when, apparently, your remaining construction costs are only about $3,500,000.

Colonel BERRIGAN. Yes sir. At the time our requirements were prepared there was still remaining a considerable amount of construction. However, we now see we will have some reduction in our requirements. The point I make is we are reducing that contingency down to about one-half million.

Mr. EVINS. You mean you will not need $1,500,000 of the funds you are requesting for 1956?

Colonel BERRIGAN. We will not need $1,500,000 that we originally estimated for the Bureau of the Budget. We have taken up the matter of reducing the estimate for 1956 with the Bureau of the Budget.

Mr. EVINS. Thank you, Colonel.

Mr. JENSEN. Is the $1,500,000 that you spoke of money that you will be unable to spend during the fiscal year 1955?

Colonel BERRIGAN. In 1956, sir.

We had $2 million in the project estimate for contingencies a year or so ago when we had about $15 million yet to spend. The year has gone by, and these contingencies have not developed to the degree that we expected. We still have some outstanding claims which are not settled, but we would not need $2 million for contingencies at this stage.

Mr. JENSEN. All right.

Operation and Maintenance, Corps of Engineers

Mr. Evins. Mr. Reporter, on operation and maintenance we will insert pages 28, 29, and 30 of the justifications.

(The matter referred to is as follows:)

Central Valley Basin—Justification of Estimate

operations and maintenance, general, fiscal year 1956

1. Navigation

(a) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels and harbors of coastal harbors and waterways by means of dredging and operation and repair of navigation facilities; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $1,594,000 for fiscal year 1956 is required for essential maintenance work on 12 channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis and determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly structural repairs and the maintenance of moderate and shallow-draft navigation channels. This condition continues to exist.

Project and tentative allocation, fiscal year 1956

California:	*Amount*
Oakland Harbor	$210,000
Old River	25,000
Redwood City Harbor	120,000
Richmond Harbor	160,000
Sacramento River	260,000
San Francisco Bay, California drift collection	70,000
San Francisco Harbor	240,000
San Joaquin River	140,000
San Pablo Bay and Mare Island Strait	250,000
Stockton and Mormon Channels	10,000
Suisun Bay Channel	90,000
Yuba River, treatment of debris	15,000
Condition surveys	4,000
Total, channels and harbors	1,594,000
Total, navigation	1,594,000

2. Flood control

(a) *Reservoirs.*—The Budget estimate of $183,000 provides for the operation and ordinary maintenance of 7 flood-control reservoirs in the Central Valley Basin during fiscal year 1956. The benefits that accrue in the San Joaquin River Valley from the impoundment of damaging flood waters by this reservoir system are substantial. In addition, the projects provide considerable collateral benefits. The amount requested in fiscal year 1956 is approximately $34,000 more than the amount available in fiscal year 1955 due to the addition of one new reservoir to the system and the increased requirements of full operation at one other project. This amount is the minimum necessary for adequate and efficient operation and maintenance of the projects.

California:	*Amount*
Farmington Reservoir	$10,000
Isabella Reservoir	61,000
Pine Flat Reservoir	96,000
Merced County stream group (4 reservoirs)	13,000
Scheduling of flood-control reservoir operations	3,000
Total flood control reservoirs	183,000

(b) *Other (including channel improvement projects, miscellaneous maintenance items and inspections).*—The Budget estimate of $3,300 provides for inspection of 5 completed local flood-protection projects.

Project and tentative allocation, fiscal year 1956:	*Amount*
Inspection of completed works	$3, 300
Total flood control	186, 300
Grand total Central Valley Basin	1, 780, 300

Mr. EVINS. We will ask Colonel Berrigan to give us a brief statement in justification of the items requested under operation and maintenance.

Colonel BERRIGAN. Well, the navigation funds are essentially to maintain channels within the San Francisco Bay area, and up the San Joaquin and Sacramento Rivers.

The other funds are to maintain the completed reservoirs such as Burns, Mariposa, Pine Flat, Isabella and Farmington.

Mr. EVINS. There are some 15 projects that you are maintaining there at the present time, is that about correct?

Colonel BERRIGAN. Yes, sir.

Mr. EVINS. I think that completes the Corps of Engineers' portion of the Central Valley area.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Mr. EVINS. We will take up next the request for appropriations for 1956 for the Bureau of Reclamation.

Mr. Reporter, you will insert in the record at this point pages BR–1, BR–2, BR–3, BR–7, BR–8, and BR–9.

(The matter referred to is as follows:)

Summary by activities, Central Valley Basin

Activity	Estimated costs of investigations in the current program				
	Estimated total	Total June 30, 1954	Program fiscal year 1955	Program fiscal year 1956	Balance to complete
Engineering and economic investigations	$3,582,320	$2,061,087	$297,054	$345,000	$879,779
Advance planning	1,313,325	793,325	110,000	410,000	
Total cost	4,895,645	2,854,412	407,054	755,000	879,779
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.			−6,732		
Total obligation program			400,322	755,000	
Less: Unobligated carryover and funds advanced			−45		
Allocation or estimate			400,277	755,000	

Schedule of general investigations program, fiscal years 1955 and 1956, Central Valley Basin

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and Economic Investigation:							
Basin surveys, region 2:							
Central Valley Basin	California	$1,180,000	$795,827	$59,394	$60,000	$264,779	Investigation, in progress, to further pursue studies directed toward establishing inventory of available water supply, reevaluate water supply and requirements, make economic analyses and make studies of alternative sites for water storage.
Upper American River Basin	do	692,549	505,349	97,200	80,000	10,000	Investigation to substantially complete in fiscal year 1956 a plan for water resource development in the basin which is adjacent to the Central Valley.
Subtotal, basin surveys		1,872,549	1,301,176	156,594	140,000	274,779	
Project investigations, region 2:							
Central Valley project (ultimate plan):							
American River division:							
Folsom North unit	California	50,000		30,000	20,000		Investigation of the feasibility of supplying Folsom Reservoir water to parts of Sacramento and Placer Counties north of the American River. Report to be completed fiscal year 1956.
Folsom South unit	do	349,820	265,083	66,500	18,237		Investigation of feasibility of conveying Folsom Reservoir water to areas of Sacramento County south of the American River will be completed in fiscal year 1956.
Fresno-Chowchilla division	do	160,000			40,000	120,000	Feasibility studies of a possible additional division of the Central Valley comprehensive plan.
Kings River division, Mendota-Kings unit.	do	285,000			40,000	245,000	Studies of engineering and economic feasibility of this unit as a part of the Central Valley comprehensive plan to provide water service to the Kings River area.
West San Joaquin division:							
Avenal Gap unit	do	310,000			70,000	240,000	Investigation needed to determine feasibility of second unit of the West San Joaquin Valley Division toward providing a firm supply to this area of diminishing ground water.
San Luis unit	do	540,000	493,237	30,000	16,763		This study to determine means for providing water to areas of diminishing ground water supply on the west side of the San Joaquin Valley is scheduled for fiscal year 1955.

Schedule of general investigations program, fiscal years 1955 and 1956, Central Valley Basin—Continued

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and Economic Investigation—Con.							
Project investigations, region 2—Continued							
Solano project, Monticello powerplant	California	$14,951	$991	$13,960			Funds needed for a feasibility study of a small powerplant at Monticello Dam where construction is presently progressing. Report to be completed in fiscal year 1956.
Subtotal, project investigations		1,709,771	759,311	140,460	$205,000	$605,000	
Total, engineering and economic investigation		3,582,320	2,060,487	297,054	345,000	879,779	
Advance planning, region 2:							
Central Valley project, Trinity River division	California	972,230	472,230	100,000	400,000		The works to be provided by this division would permit approximately 704,000 acre-feet of water to be exported annually to the Central Valley to meet critical needs. In addition, about 233,000 kilowatts of hydroelectric capacity could be installed. Advance planning should be initiated in fiscal year 1955 to prepare for early construction of the proposed works in view of the urgent needs of the Central Valley for more water, and of northern California for more electric power. Studies made in fiscal year 1955 will consider possibilities of development of the power facilities by local interests.
Kern River project	do	106,069	96,069	5,000	5,000		Negotiation for repayment of irrigation allocations of costs of Isabella Reservoir under construction by the Corps of Engineers.
Kings River project	do	235,026	225,026	5,000	5,000		Negotiation for repayment of portion of costs of Pine Flat Reservoir assigned to irrigation. Pine Flat Dam is under construction by the Corps of Engineers.
Total, advance planning		1,313,325	793,325	110,000	410,000		
Total cost		4,895,645	2,853,812	407,054	755,000	879,779	

Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.				−6,732		
Total obligations				400,322	755,000	
Method of financing:						
Allocation of appropriation				400,277		
Prior year balance available				45		
Contributions						
Allocation of appropriation requirements					755,000	

Mr. EVINS. Mr. Crosthwait, are you going to justify these items?

Mr. CROSTHWAIT. Mr. Spencer will testify on them in detail, in justification of the Central Valley project.

Mr. SPENCER. The Bureau heretofore has handled investigations on a bureauwide basis, and we are asking for the fiscal year 1956 for $5,175,000 for general investigating activities throughout the 17 Western States, Alaska and Hawaii.

CENTRAL VALLEY BASIN

Of this total amount it is estimated that about $755,000 will be utilized in the Central Valley Basin.

These funds will be utilized for planning activities on a total of 11 investigations, of which 8 will be continuations of prior year investigations, and 3 will be initiation or resumption of investigations. Of the total, six will be completed in the fiscal year 1956. It is not earmarked by so many dollars for each purpose. In this item there will be some money for investigation of flood control, power, and municipal water benefits. We always investigate all possible benefits.

Mr. EVINS. $755,000 is the total fund for general investigations for the Central Valley Basin.

Mr. SPENCER. For the Central Valley Basin only. Funds for the Klamath Basin, which includes the headwaters of the Klamath River in Oregon, and streams along the coastal area, north of Los Angeles, in the Santa Barbara area are in a separate estimate.

MUNICIPAL WATER SUPPLY

Mr. EVINS. How much, if any, of this money requested for general investigations will be expended primarily for municipal water supply?

Mr. SPENCER. Not primarily for municipal water supply, but some of those in the Central Valley Basin and the southern coastal area around Santa Barbara have a considerable amount of municipal water involved in them. Areas are being converted very rapidly from an agricultural to municipal and urban development, so any investigation that we make now has to contemplate that it will serve in the future lands which are going to be cities. There is no use shutting your eyes to it. As long as the population is growing at the rate of 1,000 a day in the State of California, what was farmland yesterday will be city tomorrow.

Mr. EVINS. We heard earlier reference to the fact that one of the reasons for a project being deferred was that agriculture would benefit from it. Your work will benefit agriculture and yet you say ultimately that land will be in cities when cities are developed in that area. That seems to be inconsistent.

TRINITY RIVER

You are requesting $400,000 for advance planning on the Trinity River. We discussed that earlier.

Will you elaborate on that, Mr. Spencer?

Mr. SPENCER. That $400,000 will be utilized on studies, for detailed planning studies and preparation of final designs for the Trinity River division of the Central Valley project in anticipation of start of con-

struction in the fiscal year 1957 providing authorization permits. To complete negotiations for repayment of costs allocated to irrigation from reservoirs constructed by the Corps of Engineers on the Kern and Kings Rivers is a part of the total requested for general investigations in the Central Valley Basin.

SUMMARY OF REQUESTED FUNDS

Mr. EVINS. If I might summarize, Mr. Spencer, and correct me if I am wrong, for engineering and economic investigations you are requesting for 1956 $345,000, and for advance planning, $410,000, or a total of $755,000.

Mr. SPENCER. That is correct.

Mr. EVINS. Under "Engineering and economic investigations for basin surveys" you are requesting $140,000, and for project investigations, $205,000, or a total of $345,000.

Mr. SPENCER. That is correct.

PROJECTS UNDER INVESTIGATION

Mr. JENSEN. Other than the Trinity River project, which is not authorized as yet, what other projects are under investigation?

Mr. SPENCER. The Folsom south unit, and the San Luis unit of the Central Valley project, the Folsom north unit and the completion of the powerplant study on the Solano project.

Mr. JENSEN. Those projects have been under construction for a number of years, have they not?

Mr. SPENCER. That is correct for Folsom Dam, but the Solano project is just being started.

Mr. JENSEN. I had in mind that the investigations were pretty well completed on all of those projects since they have been under investigation for many years. I cannot quite see how you could spend as much money as you are requesting for investigation on those projects.

I would like to know about what you are going to do. In fact, you have been telling us for years just what you planned on doing, and I thought we were about ready for construction, if construction was ever going to start.

Mr. SPENCER. We do not have the completed reports on either Folsom South or Folsom North Canals to take water from the Folsom Dam and Reservoir which will be completed this year by the Corps of Engineers.

Mr. JENSEN. How big a project is the Folsom south project? It does not involve so much planning and investigation.

Mr. SPENCER. The Folsom South Canal will be directly east of Sacramento, down along the east side of the valley into and through Sacramento County and on down into San Joaquin County. It covers an area of several hundred thousand acres. It is a very complex area because it is supplemental water, and we are trying to fit it into the existing irrigation systems and the State of California's own State water plan, and it also interests the local people, or the people in the area, who are constantly becoming more interested in having more investigation and more detailed plans extending along the east side of the San Joaquin Basin. Maybe it is because of the fact that Folsom is approaching completion now and the water is there, and heretofore

it has only been a future project which some day will be built and the water available. Now it is available, and the question of the people is how do they get it.

Mr. JENSEN. Of course, I believe in complete investigations and planning before a project enters the construction stage. I know that is necessary in order to know exactly what we are going to do when we start construction, but I was a little surprised to see the figure that you are asking for this year.

Mr. EVINS. After the water is dispersed, there may not be proper conservation and utilization of it farther on down the way. Is that one of the big problems? You have it stored at Folsom Dam, and your problem now is the proper use of it?

Mr. SPENCER. That is correct, Mr. Chairman, and also the Bureau of Reclamation uses appropriations which are repayable, and we do run into big problems of getting irrigation districts organized and getting repayment before we start construction. So, our investigation is not speeded up unless there is local interest in it. If the people do not want us in there, we do not want to go in there and spend a lot of money on this investigation first.

TRINITY RIVER

Mr. EVINS. I have one further question on the $400,000 for advance planning on the Trinity River. What portion of this is earmarked for the completion of the restudy and what portion is for the actual planning for construction? You have asked for $400,000. You have studied it several times. How much of this are you going to spend for restudy?

Mr. SPENCER. I do not know that I can break it down by dollars.

We do have a restudy that was introduced in January as a result of an offer from the local Pacific Gas & Electric Co. to enter into a partnership plan. We do have a considerable number of negotiations and conferences, and so forth, scheduled ahead in order to work that out and see what this partnership plan means, and how it fits in, how the Government will get its money back, and what proportion of it can be properly accredited to this offer.

As a matter of fact, they offered us $3,500,000 per annum for falling water. That is definite, but they did not say how it would fit into the actual sale by them and purchase by us of energy which we need in the operation of the Central Valley project.

Mr. EVINS. In view of the statement Mr. Jensen made earlier about the large amounts of money expended for planning studies, I think it would be fine if you could supply for the record just how much of this $400,000 you will use for a restudy, and how much for plans and construction.

Mr. SPENCER. Yes, sir; we will do that.

(The matter referred to is as follows:)

Approximately $25,000 of the $400,000 will be expended on restudy and negotiations; the balance will be for field surveys and designs that will be used regardless of the outcome of restudy or negotiations.

Mr. JENSEN. Are the local people contributing dollarwise, or otherwise, to these projects so far as the investigation and planning program is concerned?

Mr. SPENCER. In the Central Pacific Basin we have one project where the Butte Valley people are making a contribution of $5,000 for the current fiscal year, with an offer of $10,000 for the fiscal year 1956.

We have in the Central Valley the investigation program of the State of California which is much larger than ours, and they spend more money than we do. We exchange data, we get all of the information that they have. We exchange data with the State of California in trying to fit in the Central Valley project with the State's own State water plan.

Mr. JENSEN. All right. You talked some about the Trinity River offer by the P. G. & E., and I believe you said that there were some things that you could not quite work out yet, that you had not had a meeting of the minds, or something like that.

Mr. SPENCER. That is right.

Mr. JENSEN. Under the Boulder Canyon Act in the case of the Hoover Dam project, falling water is sold there to the city of Los Angeles, is it not?

Mr. SPENCER. It was provided for in the act, and we will correct it in the record if I am wrong in this statement, but I understand a formula was worked out that ended up in selling it on the basis of the energy charge and the generating charge, but the act did provide for a charge for falling water.

Mr. CROSTHWAIT. Plus O. and M. charges.

Mr. JENSEN. Yes; plus operation and maintenance charges.

Mr. CROSTHWAIT. Yes.

Mr. JENSEN. Now, that contract has worked wonderfully well. I do not think anybody can deny that. The Boulder Canyon project has, I presume, given Members of Congress and everyone concerned less trouble than any other project in the country because of the manner in which the power was sold, or the manner in which the falling water was sold, whatever category you care to put it in. So, you do have a pattern on which you can determine the advantages of selling power or falling water at any hydroelectric power project by simply referring to the Boulder Canyon Act and the manner in which that project is administered.

I think it is one of the finest examples of Government operation that I know of, if not the best, and it is good for all the taxpayers of the country. It is good for the people who buy the power, and it is good for the Government, and I recommend that whoever has the job of Trinity River power take a good long study of the Boulder Canyon Act and the method by which that power is sold.

Mr. CROSTHWAIT. Mr. Chairman, Secretary Aandahl is working very closely with that problem in the Department, and he might like to make a statement on that.

Mr. EVINS. We would be very pleased to have you make any observations you want to make in this connection, Mr. Aandahl.

Mr. AANDAHL. I would just like to say that the Department has been very much interested in the offer to purchase this falling water. When we appeared before the Committee on Interior and Insular Affairs I suggested to the committee that a proviso in the authorizing language would be desirable directing the Secretary to further study the possibility of sale or lease of falling water and, at his discretion, to

contract for that purpose. We want to go into that further. I think that there is a strong possibility of something being worked out.

Mr. EVINS. Thank you, Mr. Aandahl.

CONSTRUCTION AND REHABILITATION, BUREAU OF RECLAMATION

We will turn to "Reclamation construction." This is the major portion of their justification.

I will ask you, Mr. Reporter, to insert in the record at this point pages 126 through 131 of the justifications, inclusive.

(The matter referred to is as follows:)

CENTRAL VALLEY PROJECT, CALIFORNIA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$751,988,520
Total obligations to June 30, 1954		429,248,711
Allotment, fiscal year 1955	$20,960,338	
Prior year balance available	242,153	
Balance available in subsequent years	−329,000	
Total obligations, fiscal year 1955		20,873,491
Allotment, fiscal year 1956	$14,000,000	
Prior year balance available	329,000	
Total obligations, fiscal year 1956		14,329,000
Balance to complete		287,537,318

WORK PROPOSED, FISCAL YEAR 1956

Shasta Division

Shasta Dam and Reservoir ($29,000): Final payment will be made for the West Side Road. Construction of the road will be completed in fiscal year 1955.

Keswick Dam and Reservoir: No construction fund requirement for fiscal year 1956.

Shasta powerplant and switchyard ($1,231,205): Includes $1 million for reworking of two generators. Any part of these funds not required will be reprogramed to delta fish-protection facilities and Friant-Kern distribution systems. In addition but separate from the generator work, central lubricating system and carrier current relay equipment will be installed by force-account labor. Metering equipment will be installed in the metering station.

Keswick powerplant and switchyard ($14,795): Carrier current relaying equipment will be installed. Repair of the turbine runners will be completed. Both items will be done by force account.

Shasta-Tracy east side No. 3, 230-kilovolt: This item is completed. Land and right-of-way costs were the last items completed in fiscal year 1955.

Shasta-Tracy west side Nos. 1 and 2, 230-kilovolt: This item is completed. No further fund requirement is programed.

General property: This feature item is completed and no further fund requirement is programed.

Sacramento River Division

Sacramento Canal unit ($3,329,000): Construction will continue on the first reach of the Corning Canal which by year end will be approximately 67 percent complete. The program also provides for continuation of construction work and progress payments for the Corning Canal pumping plant. Surveys and design data will be started on the Tehama-Colusa Canal.

General property: No funds are programed for this feature pending advancement of construction of principal features.

American River Division

Folsom Dam and Reservoir: Facilities being constructed by Corps of Engineers.

Sly Park Dam and conduit ($21,422): The program provides for only minor miscellaneous completion work preparatory to turning facilities at Sly Park over to the El Dorado Irrigation District for operation.

Nimbus fish protection facilities ($344,671): These funds will be required to complete this feature by providing for contract earnings on the fish hatchery and appurtenant works.

Folsom power facilities ($1,061,030): Final payment will be made for right-of-way. The powerplant will be completed and the last 2 generators will be placed in service. Contract will be awarded for surfacing access roads and parking areas at Folsom and Nimbus and for miscellaneous work preparatory to turning the feature over to "Operation and maintenance."

Folsom transmission facilities ($110,238): Specifications will be issued and contract awarded for construction of bus tie breakers for direct service to Sacramento Municipal Utility District. Shunt capacitors to meet estimated SMUD contract requirements will also be installed. Specifications will be issued and contracts awarded for purchase of 230-kilovolt circuit breakers and disconnect switches for bus tie to SMUD.

General property ($165,080): Operational equipment and spare parts will be procured preparatory to turning the Folsom facilities over to "Operation and maintenance." Specifications will be issued for the construction of rain-gage stations.

Trinity River Division

Trinity River facilities: The sum of $400,000 for preliminary investigations for fiscal year 1956 is included in the request for advance planning funds under "General investigations." The proposed Trinity River Division is now under restudy, and legislation authorizing the work is now before Congress. The cost as well as power output and additional water to be made available from the project will be determined by the result of this restudy and the action of Congress. As soon as possible thereafter, additional appropriations will be requested.

Project, general

Water rights ($348,000): This program provides for the continuation of the activities concerning the riparian land delineation, and the summarization, compilation, and analysis of factual data on use of water from the Sacramento River, its tributaries, and the Sacramento-San Joaquin Delta. Activities will be continued, as required, in regards to the cooperation program entitled "Negotiations for Settlement of Water Diversions from the Sacramento River and the Sacramento-San Joaquin Delta with the Objective of Avoiding Litigation." The program also provides for negotiation and settlement of water-right claims of landowners along the San Joaquin River between Friant and Gravelly Ford.

Central Valley waterfowl conservation ($70,000): This is a new program item on the basis of Public Law 674, 83d Congress. These funds will be transferred to the United States Fish and Wildlife Service and California Department of Fish and Game. The funds will then be expended by these two agencies on a Federal and State reserve, respectively. Work will include digging of wells, purchase and installation of low lift pumps, laying of concrete pipe, and the flooding of certain sections in the reserves.

Preference customer metering facilities ($28,000): Meters will be purchased and installed for Plumas-Sierra and Glenn-Colusa preference customers.

Central Valley radio network: This feature is completed and no further funds are programed.

General property: No funds are required under this program item.

Delta Division

Tracy pumping plant and intake canal: Final completion occurred in fiscal year 1955. No further fund requirements are programed.

Delta fish protection facilities ($1,345,393): All studies and experiments will be completed. Government-supplied materials for the permanent structure will be obtained and a construction contract will be awarded. At year-end it is estimated the permanent structure will be 75 percent completed.

Contra Costa Canal ($10,000): This amount is required to cover the cost transfer from the distribution system.

Contra Costa distribution system ($400,000): This amount is programed for the construction of 5 additional laterals totaling 7 miles in length which will be constructed at the request of the county water district.

Delta cross channel ($73,807): The program provides for the completion of the salinity studies and tidal and stream-flow measurements.

Delta Mendota Canal ($200,800): The program includes the installation of trash racks for turnouts and drainage siphons.

Plainview distribution system: This feature item was completed in fiscal year 1955.

Tracy switchyard ($106,000): Roads and surface drains in the switchyard will be constructed and certain structures stabilized.

Tracy-Contra Costa-Clayton-Ignacio, 69-kilovolt transmission line and substation: This feature is completed and no further funds are programed.

General property, $92,000: Auto shop and vehicle storage space will be constructed at the Tracy switchyard.

Friant Division

Friant Dam and Reservoir: Investigation of river outlet stilling basin in October 1954 indicated that no remedial work would be necessary during fiscal year 1956. Accordingly, there is no fund requirement for the next immediate years.

Madera Canal, $277,371: This amount is required to correct seepage and to complete graveling the surface of operating roads.

Friant-Kern Canal, $767,305: The pr ogram of constructing and installing measuring devices and turnouts will be completed. Rehabilitation of concrete and earth-lined sections of the canal as required for O and M status will be continued as will bridging of drain inlets.

Madera distribution system: No program; all work was completed in fiscal year 1955.

Friant-Kern distribution system, $4,846,843: The program provides for the cleanup and settlement of land and landrights in units 1 and 2 of Delano-Earlimart Irrigation District and completion of construction in unit 3 and Exeter Irrigation District units 2 and 3. Construction contacts are scheduled for award in the Southern San Joaquin Municipal Utility District, and the Stone-Corral and Shafter-Wasco Irrigation Districts. Award of Stone-Corral and Shafter-Wasco distributing system work are contingent upon authorizing actions by those districts.

General property, $25,481: Two ditch-rider houses will be constructed for Friant-Kern operating personnel.

CENTRAL VALLEY PROJECT

Mr. EVINS. We will ask Mr. Spencer if he will give us a brief general statement on the Central Valley project.

Mr. SPENCER. The initial authorization of the Federal Central Valley project was under the Emergency Relief Appropriation Act of 1935. There have been numerous subsequent authorizations down to the last one which was the Waterfowl Management Act of August 27, 1954.

The location in the valley consists of the entire Sacramento and San Joaquin River Valleys in California. It is approximately 500 miles long and 100 miles wide.

The plan under which we have been working since 1935 is to redistribute the water. Two-thirds of it flows in the northern valley and two-thirds of the agricultural area is in the southern half of the valley in the San Joaquin area.

So, the overall problem is to store the water and convey it from the Sacramento Valley to the San Joaquin Valley.

Two major construction items have dominated the program during this year. They are the Folsom power facilities and the further construction of irrigation distribution systems. On both, satisfactory progress has been noted. With reference to Folsom power facilities, it is anticipated that the first generator at the Folsom plant will go on the line in April. In fact, the present schedule is for April 22.

Nimbus Dam, which is the afterbay dam with a small powerplant a short distance below Folsom is complete and the powerplant is in about the same status as the one at Folsom.

Both of them will be completed in the fiscal year 1956, and they will add 175,500 kilowatts to the project's power capacity by the middle of

1956. They will, in effect, increase the project's power capacity by approximately 38 percent.

A small mountain dam to the south of Folsom, Sly Park Dam is completed, and water is being diverted from Camp Creek into the reservoir. The initial delivery of irrigation water will occur during the coming season.

Good progress has been made on distribution system construction. Practically all work on the Madera distribution system has been completed, and by May, units 1 and 2 will be in operation on the Delano Earlimart system. Work has commenced on the Exeter units 2 and 3 and additional work is planned for the Contra Costa and the San Joaquin systems. In January, the Shafter-Wasco District voted 1,091 to 40 for Government construction of its distribution system. We plan to start construction of the Shafter-Wasco system early in 1956.

The program for fiscal year 1956 will continue the above items. The largest item in fiscal year 1956 program, embodying in excess of one-third of the total amount, will be further construction of the Friant-Kern distribution system. That includes the units I just mentioned.

The second item in the programed amount will be for construction on the Sacramento River canals. Construction will continue on the Corning Canal, which by the year's end will be approximately 70 percent complete. The program also provides for the issuance of specifications and the award of contract for the Corning Canal pumping plant late in fiscal year 1955, which will be essentially completed by the end of fiscal year 1956.

Other additions in the 1956 program provide for rehabilitation of two of the Shasta generators, completion of the Nimbus Fish Protection Facilities, and partial completion of the Delta Fish Protection Facilities. As additional features are completed and placed in operation, the monetary return to the Federal Government continues to increase. It is anticipated that the collection from water sales in fiscal year 1956 will be $5,500,000, an estimated increase of 29 percent over fiscal year 1955 water sales.

REPAYMENT CONTRACTS

Mr. EVINS. Will you give us a general statement as to what repayments are under way and what repayments are anticipated, and the amounts?

Mr. SPENCER. We anticipate we will collect $5.5 million from water sales during fiscal year 1956. From power revenues, we expect to collect in excess of $11 million in fiscal 1956. We have collected to date a total of $88,500,000 and by the close of fiscal year 1956 the accumulated power and water revenues of the project will have exceeded $100 million.

Mr. EVINS. You state:

> at the start of fiscal year 1955, long-term water service contracts for Central Valley project water had been executed with 30 agencies, and contract negotiations were in various stages of completion with an additional 22 other districts.

In other words, you have water contracts with 30 agencies and 22 other districts under negotiation.

Mr. SPENCER. That is correct. In the last paragraph on page 122 it shows $5.5 million in 1956 from water sales.

Mr. EVINS. And how much from power?

Mr. SPENCER. $11 million.

Those 2 figures are $16,500,000 for fiscal year 1956. The total by June 30, 1956 will run well in excess of $100 million.

Mr. EVINS. At the close of fiscal year 1956, the cumulative power and water revenues of the project will have exceeded $100 million?

Mr. SPENCER. Yes, sir.

Mr. EVINS. What is the status of the repayment contracts on units to be started this year?

Mr. SPENCER. The Shafter-Wasco is the only new unit starting and that contract has been signed.

Mr. EVINS. I am speaking of water contracts.

Mr. SPENCER. This water contract is for the Shafter-Wasco distribution system.

Mr. EVINS. There will only be one contract?

Mr. SPENCER. One only for the Shafter-Wasco District. We are proposing two Sacramento Valley canals if and when additional districts are properly organized so that they can negotiate signed contracts. We expect to start additional work on the Sacramento canals, beyond the Corning Canal, after fiscal year 1956. We are at present holding off starting these additional canals until we have assurance of contracts. We do not have repayment contracts as of today for those canals.

Mr. EVINS. What is the status of the Stone Corral unit?

Mr. SPENCER. We are negotiating with that and have been for two years. It is a new start if and when they sign the contract.

DELETION OF TRANSMISSION LINES

Mr. EVINS. I note you have deleted transmission lines of $55 million from this project since last year. What is the overall effect on the project, including repayment costs?

Mr. SPENCER. The effect of it is noted in the total cost figures for the project.

REPAYMENT SCHEDULE

As far as repayments are concerned, I can introduce for the record our last repayment schedule which will show the effect.

Mr. EVINS. I think that will be very worth while and most helpful, and I would like to have it for the record.

Mr. SPENCER. That will be supplied for the record.

(The information referred to follows:)

Composite repayment analysis—Central Valley project—including Trinity River division and associated features—California

[Thousands of dollars]

Year of study (fiscal)	Power (surplus)								Municipal water supply						
	Net operating revenue	Repayment components of net power revenues		Investment repayment from power revenues				Earned surplus (cumulative)	Net operating revenue	Repayment components of net municipal revenues		Investment repayment from municipal revenues			
				Interest bearing		Interest free						Interest bearing		Interest free	
		Interest	Excess over interest	Electric plant in service	Balance to be repaid	Irrigation plant	Balance to be repaid			Interest	Excess over interest	Municipal plant in service	Balance to be repaid	Irrigation plant	Balance to be repaid
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1941															
1942															
1943				2,215.8	2,215.8										
1944				13,713.5	13,713.5										
1945	1,560.4	411.4	1,149.0	15,668.3	14,519.3										
1946	3,304.4	435.6	2,868.8	15,984.8	11,966.9										
1947	2,989.7	359.0	2,630.7	16,058.2	9,409.7										
1948	2,603.1	282.3	2,320.8	24,580.7	15,611.4							5,569.3	5,569.3		
1949	6,447.2	534.8	5,912.4	34,650.8	19,769.0				38.5	139.2	−100.7	6,292.7	6,393.4		
1950	8,588.4	593.1	7,995.3	52,749.3	29,872.3				29.5	159.8	−130.3	6,734.7	6,965.7		
1951	9,154.1	896.2	8,257.9	61,687.0	30,552.0				36.1	174.1	−138.0	7,178.2	7,547.2		
1952	8,232.7	916.5	7,316.2	78,491.5	40,040.4				26.5	188.7	−162.2	7,579.1	8,110.3		
1953	6,999.1	1,201.2	5,797.9	80,818.7	36,563.7				80.3	202.8	−122.5	6,356.8	7,010.5		
Total through 1953	49,879.1	5,630.1	44,249.0	80,818.7	36,563.7				210.9	864.6	−653.7	6,356.8	7,010.5		
1954	6,632.0	1,096.9	5,535.1	86,860.0	37,075.9				92.3	175.3	−83.0	9,727.0	10,463.7		
1955	5,900.0	1,112.3	4,787.7	123,066.0	68,494.2				123.8	261.6	−137.8	20,100.0	20,974.5		
1956	7,073.0	2,054.8	5,018.2	124,172.0	64,582.0				141.7	524.4	−382.7	20,236.0	21,493.2		
1957	6,983.0	1,937.5	5,045.5	126,145.0	61,509.5				224.2	537.3	−313.1	20,251.0	21,821.3		
1958	7,802.0	1,845.3	5,956.7	128,412.0	57,819.7				272.2	545.5	−273.3	20,262.0	22,105.6		
1959	7,540.0	1,734.6	5,805.4	130,430.0	54,032.3				322.2	552.6	−230.4	20,270.0	22,344.0		
1960	7,321.0	1,621.0	5,700.0	135,743.0	53,645.3				374.7	558.6	−183.9	20,289.0	22,546.9		
1961	7,770.0	1,609.4	6,160.6	211,081.0	122,822.7				440.0	563.7	−123.7	20,546.0	22,927.6		
1962	9,549.0	3,684.7	5,864.3	211,081.0	116,958.4				494.7	573.2	−78.5	20,546.0	23,006.1		
1963	9,648.0	3,508.7	6,139.3	280,221.0	179,959.1				540.2	575.2	−35.0	20,782.0	23,277.1		
1964	11,526.0	5,398.8	6,127.2	280,221.0	173,831.9				600.0	581.9	18.1	20,782.0	23,259.0		
1965	11,470.0	5,215.0	6,255.0	280,221.0	167,576.8				648.7	581.5	67.2	20,782.0	23,191.8		
1966	10,852.0	5,027.3	5,824.7	280,221.0	161,752.1				697.2	579.8	117.4	20,782.0	23,074.4		
1967	10,892.0	4,852.6	6,039.4	280,221.0	155,712.7				744.0	576.9	167.1	20,782.0	22,907.3		

Composite repayment analysis—Central Valley project—including Trinity River division and associated features—California—Continued

[Thousands of dollars]

Year of study (fiscal)	Power (surplus)								Municipal water supply						
	Net operating revenue	Repayment components of net power revenues		Investment repayment from power revenues				Earned surplus (cumulative)	Net operating revenue	Repayment components of net municipal revenues		Investment repayment from municipal revenues			
				Interest bearing		Interest free						Interest bearing		Interest free	
		Interest	Excess over interest	Electric plant in service	Balance to be repaid	Irrigation plant	Balance to be repaid			Interest	Excess over interest	Municipal plant in service	Balance to be repaid	Irrigation plant	Balance to be repaid
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1968	10,865.0	4,671.4	6,193.6	280,221.0	149,519.1				785.4	572.7	212.7	20,782.0	22,694.6		
1969	10,627.0	4,485.6	6,141.4	280,221.0	143,377.7				826.2	567.4	258.8	20,782.0	22,435.8		
1970	10,596.0	4,301.3	6,294.7	280,221.0	137,083.0				860.0	560.9	299.1	20,782.0	22,136.7		
1971	10,565.0	4,112.5	6,452.5	280,221.0	130,630.5				876.0	553.4	322.6	20,782.0	21,814.1		
1972	10,258.0	3,918.9	6,339.1	280,221.0	124,291.4				892.0	545.4	346.6	20,782.0	21,467.5		
1973	10,250.0	3,728.7	6,521.3	280,221.0	117,770.1				903.0	536.7	366.3	20,782.0	21,101.2		
1974	10,260.0	3,533.1	6,726.9	280,221.0	111,043.2				913.0	527.5	385.5	20,782.0	20,715.7		
1975	10,053.0	3,331.3	6,721.7	280,221.0	104,321.5				918.0	517.9	400.1	20,782.0	20,315.6		
1976	10,050.0	3,129.6	6,920.4	280,221.0	97,401.2				922.0	507.9	414.1	20,782.0	19,901.5		
1977	10,055.0	2,922.0	7,133.0	280,221.0	90,268.2				927.0	497.5	429.5	20,782.0	19,472.0		
1978	9,868.0	2,708.0	7,160.0	280,221.0	83,108.3				932.0	486.8	445.2	20,782.0	19,026.8		
1979	9,878.0	2,493.2	7,384.8	280,221.0	75,723.5				936.0	475.7	460.3	20,792.0	18,566.5		
1980	9,888.0	2,271.7	7,616.3	280,221.0	68,107.2				943.0	464.2	478.8	20,792.0	18,087.7		
1981	9,683.0	2,043.2	7,639.8	280,221.0	60,467.4				948.0	452.2	495.8	20,782.0	17,591.9		
1982	9,693.0	1,814.0	7,879.0	280,221.0	52,588.4				953.0	439.8	513.2	20,782.0	17,078.7		
1983	9,695.0	1,577.7	8,117.3	280,221.0	44,471.1				957.0	427.0	530.0	20,782.0	16,548.7		
1984	9,600.0	1,334.1	8,265.9	280,221.0	36,205.2				962.0	413.7	548.3	20,782.0	16,000.4		
1985	9,610.0	1,086.2	8,523.8	280,221.0	27,681.4				967.0	400.0	567.0	20,782.0	15,433.4		
1986	9,620.0	830.4	8,709.6	280,221.0	18,891.8				974.0	385.8	588.2	20,782.0	14,845.2		
1987	9,520.0	566.8	8,953.2	280,221.0	9,938.6				979.0	371.1	607.9	20,782.0	14,237.3		
1988	9,522.0	298.2	9,223.8	280,221.0	714.8				988.0	355.9	632.1	20,782.0	13,605.2		
1989	9,522.0	21.4	9,500.6	280,221.0	.0	66,635.6	57,849.8		993.0	340.1	652.9	20,782.0	12,952.3		
1990	9,522.0	.0	9,522.0	280,221.0	.0	66,635.6	48,327.8		998.0	323.8	674.2	20,782.0	12,278.1		
1991	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	38,805.8		1,003.0	307.0	696.0	20,782.0	11,582.1		
1992	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	29,283.8		1,008.0	289.6	718.4	20,782.0	10,863.7		
1993	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	19,761.8		1,008.0	271.6	736.4	20,782.0	10,127.3		
1994	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	10,239.8		1,008.0	253.2	754.8	20,782.0	9,372.5		
1995	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	717.8		1,008.0	234.3	773.7	20,782.0	8,598.8		
1996	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	8,804.2	1,008.0	215.0	793.0	20,782.0	7,805.8		
1997	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	18,326.2	1,008.0	195.1	812.9	20,782.0	6,992.9		
1998	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	27,848.2	1,008.0	174.8	833.2	20,782.0	6,159.7		

1998	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	27,848.2	1,008.0	174.8	833.2	20,782.0	6,159.7		
1999	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	37,370.2	1,008.0	154.0	854.0	20,782.0	5,305.7		
2000	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	46,892.2	1,008.0	132.6	875.4	20,782.0	4,430.3		
2001	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	56,414.2	1,008.0	110.8	897.2	20,782.0	3,533.1		
2002	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	65,936.2	1,008.0	88.3	919.7	20,782.0	2,613.4		
2003	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	75,458.2	1,008.0	65.3	942.7	20,782.0	1,670.7		
2004	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	84,980.2	1,008.0	41.8	966.2	20,782.0	704.5		
2005	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	94,502.2	1,008.0	17.6	990.4	20,782.0	0.0	8,349.9	8,064.0
2006	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	104,024.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	7,056.0
2007	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	113,546.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	6,048.0
2008	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	123,068.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	5,040.0
2009	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	132,590.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	4,032.0
2010	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	142,112.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	3,024.0
2011	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	151,634.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	2,016.0
2012	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	161,156.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	1,008.0
2013	9,522.0	0.0	9,522.0	280,221.0	0.0	66,635.6	0.0	170,678.2	1,008.0	0.0	1,008.0	20,782.0	0.0	8,349.9	0.0
Total	619,043.1	101,508.3	517,534.8	280,221.0	0.0	66,356.6	0.0	170,678.2	50,458.4	21,326.5	29,131.9	20,782.0	0.0	8,349.9	0.0

Composite repayment analysis—Central Valley project—including Trinity River division and associated features—California—Continued

[Thousands of dollars]

Year of study (fiscal)	Irrigation			Distribution systems					Net operating revenues	Recapitulation	
	Net operating revenue	Investment repayment		Net operating revenue	Repayment components of net distribution system revenues		Investment repayment from distribution system revenues			Interest component (cumulative)	Earned surplus (cumulative)
		Irrigation plant in service	Balance to be repaid		(c) Interest	Excess over interest	Distribution system in service	Balance to be repaid			
(1)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
1941											
1942											
1943											
1944											
1945									1,560.4	411.4	
1946									3,304.4	847.0	
1947									2,989.7	1,206.0	
1948									2,603.1	1,488.3	
1949	−45.5								6,440.2	2,162.3	
1950	−21.9								8,596.0	2,915.2	
1951	−618.3								8,571.9	3,985.5	
1952	−608.0								7,651.2	5,090.7	
1953	908.1								7,987.5	6,494.7	
Total through 1953	−385.6								49,704.4	6,494.7	
1954	518.1						2,350.0	2,350.0	7,242.4	7,766.9	
1955	1,713.4						11,558.0	11,558.0	7,737.2	9,140.8	
1956	2,686.2			58.7		58.7	23,104.0	23,045.3	9,959.6	11,720.0	
1957	3,155.1			58.7		58.7	32,735.0	32,617.6	10,421.0	14,194.8	
1958	3,295.6			266.7		266.7	37,900.0	37,515.9	11,636.5	16,585.6	
1959	3,488.3			555.4		555.4	51,455.0	50,515.5	11,905.9	18,872.8	
1960	3,536.6			555.4		555.4	51,455.0	49,960.1	11,787.7	21,052.4	
1961	3,782.4			883.7		883.7	51,455.0	49,076.4	12,876.1	23,225.5	
1962	3,996.7			1,240.0	6.4	1,233.6	51,455.0	47,842.8	15,280.4	27,489.8	
1963	4,239.1			1,271.7	6.3	1,265.4	51,455.0	46,577.4	15,699.0	31,580.0	
1964	4,367.9			1,271.5	6.1	1,265.4	51,455.0	45,312.0	17,765.4	37,566.8	
1965	4,560.4			1,271.4	6.0	1,265.4	51,455.0	44,046.6	17,950.5	43,369.3	
1966	4,679.1			1,271.2	5.8	1,265.4	51,455.0	42,781.2	17,499.5	48,982.2	
1967	4,799.8			1,271.0	5.6	1,265.4	51,455.0	41,515.8	17,706.8	54,417.3	
1968	4,917.5			1,270.9	5.5	1,265.4	51,455.0	40,250.4	17,838.8	59,666.9	
1969	5,036.5	324,392.5	266,005.4	1,291.7	5.3	1,286.4	51,455.0	38,964.0	17,781.4	64,725.2	
1970	5,143.6	324,392.5	260,861.8	1,291.5	5.1	1,286.4	51,455.0	37,677.6	17,891.1	69,592.5	
1971	5,188.7	324,392.5	255,673.1	1,291.4	5.0	1,286.4	51,455.0	36,391.2	17,921.1	74,388.4	
1972	5,293.8	324,392.5	250,379.3	1,291.3	4.9	1,286.4	51,455.0	35,104.8	18,079.1	79,188.4	

1968	4,917.5			1,291.7	5.3	1,286.4	51,455.0	38,964.0	17,781.4	64,725.2	
1969	5,036.5	324,392.5	266,005.4								
1970	5,143.6	324,392.5	260,861.8	1,291.5	5.1	1,286.4	51,455.0	37,677.6	17,891.1	69,592.5	
1971	5,188.7	324,392.5	255,673.1	1,291.4	5.0	1,286.4	51,455.0	36,391.2	17,921.1	74,263.4	
1972	5,393.8	324,392.5	250,279.3	1,291.2	4.8	1,286.4	51,455.0	35,104.8	17,835.0	78,732.5	
1973	5,516.5	324,392.5	244,762.8	1,291.1	4.7	1,286.4	51,455.0	33,818.4	17,960.6	83,002.6	
1974	5,623.6	324,392.5	239,139.2	1,290.9	4.5	1,286.4	51,455.0	32,532.0	18,087.5	87,067.7	
1975	5,707.7	324,392.5	233,431.5	1,290.7	4.3	1,286.4	51,455.0	31,245.6	17,969.4	90,921.2	
1976	5,790.2	324,392.5	227,641.3	1,290.5	4.1	1,286.4	51,455.0	29,959.2	18,052.7	94,562.8	
1977	5,877.0	324,392.5	221,764.3	1,290.4	4.0	1,286.4	51,455.0	28,672.8	18,149.4	97,986.3	
1978	5,961.1	324,392.5	215,803.2	1,290.2	3.8	1,286.6	51,455.0	27,386.4	18,051.3	101,184.9	
1979	6,030.7	324,392.5	209,772.5	1,290.1	3.7	1,286.4	51,455.0	26,100.0	18,134.8	104,157.5	
1980	6,102.4	324,392.5	203,670.1	1,289.9	3.5	1,286.4	51,455.0	24,813.6	18,223.3	106,896.9	
1981	6,108.5	324,392.5	197,561.6	1,289.7	3.3	1,286.4	51,455.0	23,527.2	18,029.2	109,395.6	
1982	6,118.2	324,392.5	191,443.4	1,289.6	3.2	1,286.4	51,455.0	22,240.8	18,053.8	111,652.6	
1983	6,123.2	324,392.5	185,320.2	1,289.4	3.0	1,286.4	51,455.0	20,954.4	18,064.6	113,660.3	
1984	6,132.9	324,392.5	179,187.3	1,289.2	2.8	1,286.4	51,455.0	19,668.0	17,984.1	115,410.9	
1985	6,142.6	324,392.5	173,044.7	1,289.1	2.7	1,286.4	51,455.0	18,381.6	18,008.7	116,899.8	
1986	6,148.7	324,392.5	166,896.0	1,288.9	2.5	1,286.4	51,455.0	17,095.2	18,031.6	118,118.5	
1987	6,158.5	324,392.5	160,737.5	1,288.7	2.3	1,286.4	51,455.0	15,808.8	17,946.2	119,058.7	
1988	6,167.2	324,392.5	154,570.3	1,288.6	2.2	1,286.4	51,455.0	14,522.4	17,965.8	119,715.0	
1989	6,173.5	324,392.5	148,396.8	1,288.4	2.0	1,286.4	51,455.0	13,236.0	17,976.9	120,078.5	
1990	6,183.2	324,392.5	142,213.6	1,288.2	1.8	1,286.4	51,455.0	11,949.6	17,991.4	120,404.1	
1991	6,183.2	324,392.5	136,030.4	1,288.1	1.7	1,286.4	51,455.0	10,663.2	17,996.3	120,712.8	
1992	6,183.2	324,392.5	129,847.2	1,287.9	1.5	1,286.4	51,455.0	9,376.8	18,001.1	121,003.9	
1993	6,183.2	324,392.5	123,664.0	1,287.8	1.4	1,286.4	51,455.0	8,090.4	18,001.0	121,276.9	
1994	6,183.2	324,392.5	117,480.8	1,287.6	1.2	1,286.4	51,455.0	6,804.0	18,000.8	121,531.3	
1995	6,183.2	324,392.5	111,297.6	1,287.4	1.0	1,286.4	51,455.0	5,517.6	18,000.6	121,766.6	
1996	6,183.2	324,392.5	105,114.4	1,228.5	.9	1,227.6	51,455.0	4,290.0	17,941.7	121,982.5	8,804.2
1997	6,183.2	324,392.5	98,931.2	1,228.3	.7	1,227.6	51,455.0	3,062.4	17,941.5	122,178.3	18,326.2
1998	6,183.2	324,392.5	92,748.0	1,020.1	.5	1,019.6	51,455.0	2,042.8	17,733.3	122,353.6	27,848.2
1999	6,183.2	324,392.5	86,564.8	731.4	.4	731.0	51,455.0	1,311.8	17,444.6	122,508.0	37,370.2
2000	6,183.2	324,392.5	80,381.6	731.2	.2	731.0	51,455.0	580.8	17,444.4	122,640.8	46,892.2
2001	6,183.2	324,392.5	74,198.4	402.7	.0	402.7	51,455.0	178.1	17,115.9	122,751.6	56,414.2
2002	6,183.2	324,392.5	68,015.2	52.7	.0	52.7	51,455.0	125.4	16,765.9	122,839.9	65,936.2
2003	6,183.2	324,392.5	61,832.0	20.9	.0	20.9	51,455.0	104.5	16,734.1	122,905.2	75,458.2
2004	6,183.2	324,392.5	55,648.8	20.9	.0	20.9	51,455.0	83.6	16,734.1	122,947.0	84,980.2
2005	6,183.2	324,392.5	49,465.6	20.9	.0	20.9	51,455.0	62.7	16,734.1	122,964.6	94,502.2
2006	6,183.2	324,392.5	43,282.4	20.9	.0	20.9	51,455.0	41.8	16,734.1	122,964.6	104,024.2
2007	6,183.2	324,392.5	37,099.2	20.9	.0	20.9	51,455.0	20.9	16,734.1	122,964.6	113,546.2
2008	6,183.2	324,392.5	30,916.0	20.9	.0	20.9	51,455.0	0.0	16,734.1	122,964.6	123,068.2
2009	6,183.2	324,392.5	24,732.8	0.0	.0	0.0	51,455.0	0.0	16,713.2	122,964.6	132,590.2
2010	6,183.2	324,392.5	18,549.6	0.0	.0	0.0	51,455.0	0.0	16,713.2	122,964.6	142,112.2
2011	6,183.2	324,392.5	12,366.4	0.0	.0	0.0	51,455.0	0.0	16,713.2	122,964.6	151,634.2
2012	6,183.2	324,392.5	6,183.2	0.0	.0	0.0	51,455.0	0.0	16,713.2	122,964.6	161,156.2
2013	6,183.2	324,392.5	0.0	0.0	.0	0.0	51,455.0	0.0	16,713.2	122,964.6	170,678.2
Total	324,392.5	324,392.5	0.0	51,584.8	129.8	51,455.0	51,455.0	0.0	1,045,478.8	122,964.6	170,678.2

Summary

	Cost allocation	Probable repayment (through fiscal year 2013)
Storage, conveyance, and power facilities:		
Reimbursable:		
Irrigation	$399,378,000	$324,392,500
M. & I. Water Service	20,782,000	[1] 50,458,400
Power (surplus)	280,221,000	[2] 619,043,100
Subtotal	700,381,000	993,894,000
Nonreimbursable: Flood control, navigation, and fish and wildlife	54,532,000	
Total	754,913,000	993,894,000
Distribution facilities (water)	51,455,000	[3] 51,584,800
Grand total	806,368,000	1,045,478,800

[1] In addition to repayment of the M. and I. investment, includes $21,326,500 of interest and $8,349,900 toward repayment of the irrigation investment.
[2] Includes $101,508,300 of interest, an aid to irrigation of $66,635,600 from net revenues, and $170,678,200 of earned surplus.
[3] Includes interest of $129,800 for portion of the Contra Costa Canal system assigned to the M. and I. function.

POLICY ON REPAYMENT CONTRACTS

Mr. JENSEN. Do you have repayment contracts completed before water is furnished to any user in the entire Central Valley?

Mr. SPRNCER. Yes, we do, before water is furnished to the users; that is correct.

Mr. JENSEN. Or before you start construction of a distribution system?

Mr. SPENCER. Yes; for distribution systems, that is correct.

Mr. JENSEN. You have firm contracts before you start construction?

Mr. SPENCER. That is the present policy; that is what we are doing now on distribution systems.

Mr. JENSEN. Has that always been the policy?

Mr. SPENCER. So far as I know, yes; but you will recall, Mr. Jensen, I have only been in region 2 for the past 2 years.

Mr. JENSEN. I realize that.

Mr. SPENCER. And it started in 1935.

Mr. JENSEN. But that is the way you are going to handle things at least from now on?

Mr. SPENCER. That is my understanding of the policy of the Bureau and the Department's policy.

FRIANT-KERN DISTRIBUTION SYSTEM

Mr. EVINS. You have added an entire distribution system to the Friant-Kern system at a cost of approximately $10 million. What is the justification for this addition?

Mr. SPENCER. Contracts signed with the Shafter-Wasco Irrigation District to repay it in full.

Mr. EVINS. What benefits, if any, do you anticipate to accrue from it other than the return of the money?

Mr. SPENCER. It is part of the Central Valley project—of the total authorized project—which, as I understand it, the Bureau is supposed to complete at the earliest possible date with appropriations from the Congress.

Mr. EVINS. What amounts are you requesting for each of the new Friant-Kern units? The total request is $4,846,000.

Mr. SPENCER. That includes about 4 or 5 units. We can break it down for you.

Mr. EVINS. I wish you would.

Mr. SPENCER. That includes those names I gave you—Shafter-Wasco; Exeter——

Mr. EVINS. I think we should have a breakdown of each of those projects for the record.

(The material referred to follows:)

Friant-Kern distribution systems, fiscal year 1956 request

Stone Corral	$108,700
Delano-Earlimart	1,037,873
Shafter-Wasco	2,000,000
SSJMUD	933,052
Exeter	767,218
Total	4,846,843

INCREASE IN FEDERAL INVESTMENT PER ACRE

Last year the Federal investment per acre was shown to be $321; this year it is estimated to be $369. How do you explain this increase?

Mr. SPENCER. There is more work being done at a greater cost per acre.

OBLIGATIONS AND EXPENDITURES

Mr. EVINS. To summarize the estimated total obligations for construction and rehabilitation for the Central Valley project, the estimated total expenditures are $751,988,520; the total obligations for 1955 were $20,873,491; budget allotment and request for 1956 is $14 million, with a prior-year balance available of $329,000—or total obligations for fiscal 1956 of $14,329,000.

AUTO SHOP AND VEHICLES STORAGE SPACE

On page BR–131 of your justifications, you show auto shop and vehicle storage space will be constructed at the Tracy switchyard for $92,000.

Mr. SPENCER. That is correct.

Mr. EVINS. That is needed, necessary, justified and required?

Mr. SPENCER. That is a permanent headquarters and operation and maintenance headquarters for those big Tracy pumps, and also headquarters for the operation and maintenance forces which patrol the Delta-Mendota Canal, some 120 miles long, and also operation and maintenance for the fish screens which are upstream from the pumping plant by a couple of miles. It is the overall operation and maintenance headquarters and we need the shop and storage space to provide proper care for the Government-owned equipment.

MADERA CANAL

Mr. EVINS. For the Madera Canal, you show $277,371 is required, as you state, "to correct seepage and to complete graveling the surface of operating roads." It looks like when you planned the projects

initially and originally you got ample money to correct the seepage. Why should it be recurring?

Mr. SPENCER. I would not say they have never been, but when you have an unlined canal 36 miles long, you are bound to find some places where the nature of the materials underneath gives you some trouble. And since there is a portion of that canal with farms immediately below it, in time if there is a slight leak in your canal it has to be corrected, or the water users are damaged and the Government may be liable.

ULTIMATE IRRIGATION AND POWER PLANNED

Mr. EVINS. Last year you contemplated an ultimate irrigation of 1,105,000 acres and 847,500 kilowatts of power. Now you contemplate 1,115,653 acres, with 862,500 kilowatts of power. The power rates show an amazing change, with ultimate rates of 4.2 for firm and 2.2 for nonfirm, compared to 5.1 and 3.3, respectively, for last year.

How do you explain and justify those differences?

Mr. SPENCER. Mr. Chairman, I do not have with me an explanation in comparison with last year. We can get it and put it in the record.

Mr. EVINS. I think it would be helpful and I wish you would.

(The matter referred to follows:)

The revision in the ultimate acreage estimated to be served by the project is occasioned by a restudy of the acreages to be irrigated within the districts with which long-term water-service contracts have been negotiated as well as giving consideration to the new contracts in the process of negotiation.

The increased power is the result of increasing the power capacity of the Trinity powerplant at the Trinity Dam.

The change in average firm power rate from 5.1 to 4.2 mills, as shown in budget justifications for fiscal year 1955 and 1956, results from application of the rate schedules to customer loads estimated to have differing characteristics. The more recent estimates were made on the basis of experience with existing contract in 1955 and are considered adequate for use in long-term projections of project feasibility.

The change in nonfirm power rate results from studies made in 1955, at which time actual receipts under terms of the existing sales contract with Pacific Gas & Electric Co. were reflected. Previous studies assumed that nonfirm power could and would be sold at its value for replacing fuel used in steam generation. Again, the rate should be and is conservative since revenues estimated to be derived thereunder reflect on project feasibility.

STATUS OF WATER-RIGHTS CLAIMS

Mr. EVINS. What is the status of your water-rights program as shown on page BR–129 and what water-rights claims have been or are anticipated to be received from landowners in the area?

Mr. SPENCER. I do not think we have, but it is a very involved subject and, if I do not give you all of the information you want, we would be glad to supply more for the record.

Part of those water-right claims revert back to a case in the Federal court, *Rank* v. *Krug*. On the San Joaquin, the Government is being sued for not releasing water from Friant Dam to flow down the San Joaquin River in the historical manner that it did before we started the Central Valley project. That has been in the courts for several years and I understand we are to get a decision from the Federal judge sometime this year. However, in all probability there will be delay and we are still gathering information and trying to

determine what, if anything, the Government should have to pay for water rights which apparently were acquired years ago.

In the Sacramento River we have a cooperating agreement with the State and the Sacramento River Flood Control District in combination with the delta, covering all of the lands from Red Bluff, a few miles below Shasta, down to and including the delta area east of San Francisco.

There has not been a determination of the water rights with priorities, so we are working in cooperation with the State and the water users themselves trying to arrive at a peaceful settlement of those water rights, rather than to have another case in the Federal courts similar to *Rank* v. *Krug*.

Mr. EVINS. How many water right claims are pending at the present time?

Mr. SPENCER. There are somewhere around 200 of those in *Rank* v. *Krug*. We do not have any water-right claims pending on the Sacramento as yet.

Mr. EVINS. You differentiate between water rights and water-right claims?

Mr. SPENCER. That is correct.

Mr. EVINS. Most all of them, apparently, are being served and are satisfied; there are just a few who are not.

Mr. SPENCER. The 200 claimants on the San Joaquin River do not admit they are being served in a manner satisfactory to them.

Mr. EVINS. Do you anticipate you will have further claims?

Mr. SPENCER. I suspect we will; but it will depend very much on the decision in this court case pending now. That is pure speculation, you understand. But the funds are needed to carry on this program which is now under way.

DELTA FISH-PROTECTION FACILITIES

Mr. EVINS. In the report accompanying the Interior bill for fiscal 1955, you were instructed to review the delta fish-protection-facilities program and to explore other alternative methods of protection which might be needed as a result of the operation of the Tracy plant. What has been the result of this study and what type of facilities do you now contemplate?

Mr. SPENCER. We did continue to study it and we are now designing and hope to start construction, if funds are allowed, of fish screens across the intake with a new type of louvered screens which the fish and wildlife people, both Federal and State, agree are satisfactory. And we are ready to start construction.

Mr. EVINS. It would seem that $4,500,000 would be considered extremely high for that type of project. Apparently you do not feel that way?

Mr. SPENCER. We do not feel that way. We are only asking for $1,345,000 this year. If after we make the final contracts and designs award it will be less, we can correct the estimate next year.

Mr. CROSTHWAIT. We can submit a statement on the fish situation, if you would like to have it.

Mr. EVINS. Yes; I think that should be inserted in the record.

(The statement referred to is as follows:)

CENTRAL VALLEY PROJECT—DELTA FISH-PROTECTIVE FACILITIES

STATUS AND PLANS, FISCAL YEAR 1955–56

Fish-protective facilities include the construction of the temporary fish-screen structure, and pilot channel at the headworks of the intake canal, and eventual construction of the permanent fish-screen structure which will also serve as the headworks structure of the Delta-Mendota Canal. The total estimated cost of the facilities is $4,500,000.

The delta fish problem has been very intricate and difficult since its inception. The State of California issued an order several years ago requiring that the intake to the Delta-Mendota Canal be screened to prevent the entrance of fish to that feature. Originally the problem was considered as primarily the preservation of salmon fingerlings, which spawn in the upper reaches of the San Joaquin River and were in danger of being drawn into the canal by the draft of the Tracy pumps while en route to the ocean. No data on or prototype of a structure of this kind were available. A Fish Advisory Council was set up consisting of representatives from the State division of fish and game, State division of water resources, United States Fish and Wildlife Service, and the Bureau of Reclamation to guide the studies, evaluate the data developed, and recommend the final design of the permanent structure. Under a cooperative agreement with Fish and Wildlife Service several biologists from that agency were assigned to the study to assist the Bureau of Reclamation.

It was realized that at the time the Delta-Mendota Canal and Tracy pumping plant were ready for operation in 1951 that a positive solution of the problem would not have been reached. Accordingly, it was agreed that during the early years of operations, fish protection would be provided by pilot channel and pilot fish-screen structure. This channel is located to bypass water from the delta channels around the permanent structure location and into the Delta-Mendota Canal. The pilot structure originally included both sloping and vertical stationary screens and traveling screens. During its operation it was discovered that only the traveling screens, two of which had been initially installed, were functioning in anywhere nearly a satisfactory manner.

The biological studies indicated that the problem was not confined to salmon alone but also included striped bass which are spawned in the Delta area. It was found that the young bass are very delicate and the shock of being impinged upon either the traveling or stationary screens resulted in very high mortality to the fish. This condition necessitated a revision of thinking, and intensive large-scale studies were carried out in an effort to find some method of treatment to the shocked fish which would reduce the mortality. In this connection it was found that both treatment in a highly saline solution or in refrigerated water or both was relatively successful but expensive. In an effort to find some other means of handling the fish, which after being removed from the screens must be transported to a location downstream in the Delta beyond the influence of the Tracy pumping plant, studies and research were conducted to find some other means of screening. It was discovered that the use of a row of louvers set diagonally to the flow of water was effective in removing the fish from the main flow of water without shock or damage, and it is presently hoped that this will be a practical solution.

Due to the high maintenance costs and ineffectiveness of the stationary screens, 2 additional traveling screens were installed during the summer of 1953 and 2 more traveling screens will be installed prior to the irrigation season of 1955.

During the 1953 irrigation season when demands were higher than anticipated from Delta-Mendota Canal and it was necessary to pump with 4 units at the Tracy pumping plant instead of the maximum 3 for which the pilot channel was designed, excessive erosion and undermining of the structure occurred. This condition necessitated extensive and expensive repairs to stabilize the structure. After model studies were conducted in the chief engineer's office, it was found that the condition could be rectified by an enlargement of the pilot channel and this was accomplished prior to the 1954 irrigation season.

$332,200 was expended during fiscal year 1954 for the enlargement of the pilot channel and the installation of 2 additional traveling screens (making a total of 6), the operation of the pilot structure, the continuation of the biological studies, and the collection of the primary design data for the permanent structure.

During fiscal year 1955, $254,000 has been programed for the continued operation of the temporary screens, the pilot structure, and the continuation of the biological work and experimentation for the permanent screen. As of December 1, 1954, the region had furnished the Denver design branch with data necessary for

the design of the permanent structure and preparation of design was underway. The permanent fish screen structure will be approximately 20 by 400 feet and consisting of vertical louvers. The structures will extend across the channel at an approximate 15° angle. The fish coming to this louvered barrier are, in effect, directed into tanks or ponds and then gathered and delivered to areas beyond the influence of the pumps.

In fiscal year 1956, $1,345,393 is programed for this feature. Some Government-supplied materials are to be acquired, and it is expected that at year end the structure will be approximately 75 percent complete.

SOLANO PROJECT

Mr. EVINS. The next project is the Solano project. I am going to ask the reporter to insert in the record pages 147 and 148 at this point. (The matter referred to above follows:)

SOLANO PROJECT, CALIFORNIA

Estimate for construction and rehabilitation

Estimated total obligations		$46,474,396
Total obligations to June 30, 1954		2,822,973
Allotment, fiscal year 1955	$6,975,000	
Prior year balance available	25,642	
Total obligations, fiscal year 1955		7,000,642
Allotment, fiscal year 1956	$13,000,000	
Total obligations, fiscal year 1956		13,000,000
Balance to complete		23,650,781

WORK PROPOSED, FISCAL YEAR 1956

Monticello Dam and facilities, $11,003,948: The program provides for contract payments to virtually complete the dam, relocation of Napa County roads, continuation of reservoir clearing, the completion of acquisition of land and land rights, the completion of all highway relocation (approximately 16½ miles in length); relocation of Monticello Cemetery.

Putah diversion dam and South Canal, $2,093,120: All necessary land and right-of-way for the dam will be acquired, procurement of Government supplied materials will commence and construction will begin on the dam. Approximately 80 percent of the right-of-way for the canal will be acquired; materials for the first section of the canal will be purchased and by year end the first section will be approximately 70 percent complete. Specifications will also be issued for the next two sections of the canal. This activity should proceed as scheduled to coordinate the construction of the diversion dam and canal with the availability of water.

Distribution systems: No work has been done on this feature except under project investigations for the final revised definite plan report and no work is scheduled for fiscal year 1956.

Drainage system: No detailed layout of a drainage system has been made. The drainage work required will be determined from experience obtained under project operation. No work is scheduled on this feature during fiscal year 1956.

Mr. EVINS. I will ask Mr. Spencer to give us a brief statement of what the project encompasses, what you have accomplished to date, and what is planned for the future.

Mr. SPENCER. The project was authorized in 1948. The location is in Solano County, Calif., which county adjoins the northeast extremity of San Francisco Bay. The project provides for a storage reservoir of approximately 1,600,000 acre-feet to be created by construction of a concrete arch dam with a crest length of 1,017 feet, and 276 feet high, located on Putah Creek below Monticello; a small concrete and earthfill diversion dam downstream; a main canal 38

miles in length and a small terminal reservoir and the necessary wasteways, laterals, and drainage works.

As of June 30, 1954, the contract for the construction of Monticello Dam was well underway. The relocation of a 1.5-mile portion of State Highway 28 was nearing completion. Field design data on 14 miles of lined canal have been completed. Bids were opened on July 7, 1954, and contract awarded for construction of the next 10-mile section of the highway. Surveys and investigations for the diversion dam have been continued.

Mr. Chairman, is it the status today, or the status at June 30, 1955, that will be the end of the current fiscal year, that the committee wants? We are asking for money to carry us on from then. We are sometimes asked where we will be at the end of the fiscal year and what are the estimates for funds for the next fiscal year.

Mr. EVINS. Just give the committee a brief statement as to the status of this project, at this time. How you have advanced. What is the status of completion?

Mr. SPENCER. The excavation for the dam, itself, is practically completed, with concrete pouring for the main dam, itself, to start next month, in May.

Mr. EVINS. In most of these projects you have given a percentage of completion in your report. I don't see one in the justification for the Solano project.

Mr. SPENCER. May I explain that for the record?

Mr. EVINS. Could you give us an approximate estimate? 25 percent complete, 30 percent, 40 percent? Could you give us an estimate as to the degree of completion?

Mr. SPENCER. Approximately 20 percent by the end of the year. I would say 17 percent, today.

Mr. EVINS. What is the status of the repayment contracts on this project?

Mr. SPENCER. The master contract with the Solano County Water District was signed about a month ago.

RELOCATION OF ROADS

Mr. EVINS. What final agreement or arrangements have you reached with local interests on relocations?

Mr. SPENCER. We have reached agreement with the State on all of State Route 28. We have a form of contract now being considered by Napa County for the county roads which will have to be replaced around the west side of the reservoir basin.

Mr. EVINS. What is the estimated cost of this replacement work?

Mr. SPENCER. The county road will run approximately $3,100,000. That is our present estimate.

Mr. EVINS. Are you replacing these roads substantially in kind or are you rebuilding much superior roads?

Mr. SPENCER. We are replacing them in kind, insofar as possible. They cost more than the original road. They will not be as good a road, because unfortunately we have to build them in the mountains where they have adverse grades and sharp curvatures, while the old road which we are replacing was out in a level valley where there are very few adverse grades, very small structures.

Mr. EVINS. I personally see no reason why you shouldn't replace them with an excellent road of the same type while you are doing the job.

Mr. SPENCER. A new road is bound to be a better road than one that has been in existence for a long time. But from an overall standpoint, if I were the county, I would prefer to have the old road and do my own maintenance and rehabilitation on the old road, than to have to operate and maintain the new road in the mountains.

Mr. EVINS. Give us a statement as to the repayment costs allocated to irrigation.

Mr. SPENCER. The allocation of cost to irrigation, on the present estimated total cost of $47 million dollars, is $43,326,000.

Municipal and industrial water, is $2,653,000; flood control, $1,132,000.

INCREASE OVER ORIGINAL ESTIMATE

Mr. EVINS. The original estimated cost of this project was $45,577,000. The present estimated cost is $47,111,000.

What brought about the necessity for an increase over your original estimate?

Mr. SPENCER. Since the original estimate was made we have done a considerable amount of work, have awarded contracts for work yet to be done, and the increase of approximately $1,500,000 is brought about through increased costs of work done since the original estimate, or contracts already let, for which the estimates were slightly lower. There has been no change in the project plan.

Mr. EVINS. After this year, it is estimated that you would need $23,650,781 to complete the project. Is that correct?

Mr. SPENCER. That is correct.

OPERATION AND MAINTENANCE, BUREAU OF RECLAMATION

CENTRAL VALLEY AND KINGS RIVER PROJECTS

Mr. EVINS. One other item in your justification, "Operation and maintenance" for the Central Valley project.

Mr. Reporter, insert pages BR–503, 504, 505, skip 6, and include 507.

(The pages referred to follow:)

CENTRAL VALLEY PROJECT, CALIFORNIA

(For project data see p. BR–120)

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$3,304,419
Allotment, fiscal year 1955	4,536,836
Total obligations, 1955	4,536,836
Allotment, fiscal year 1956	5,547,050
Total obligations, 1956	5,547,050

Work proposed, fiscal year 1956

	Program, 1956	Increase (+) or decrease (−) from 1955
MULTIPURPOSE FACILITIES		
Storage system: For the continued operation of Shasta and Friant Reservoirs and first operation of Folsom Dam and Reservoir, all increase due to Folsom initial operation	$487,371	+$145,352
Primary pumping: For operation and maintenance of Tracy and Contra Costa pumping plants	405,892	+5,596
Carriage system: For the normal operation and maintenance of Sacramento and San Joaquin Rivers, Delta cross channel, Contra Costa Canal system, Delta-Mendota Canal, and water deliveries to utility districts in Shasta Dam area	716,237	+76,164
Replacements and improvements: For replacement of 12¾- to 1-ton pickup trucks, 8 station wagons and sedans—all used in excess of GSA replacement standards	32,000	+32,000
Total obligations, multipurpose facilities	1,641,500	+259,112
IRRIGATION FACILITIES		
Carriage system: For the normal operation and maintenance of Madera and Friant-Kern Canal. Increase is cost adjustment and deferred maintenance	649,000	+92,050
Replacements and improvements: For the replacement of 9 3-ton dump trucks, pickup trucks and passenger vehicles. All vehicles used in excess of GSA standards for replacement	38,400	+38,400
Total obligations, irrigation facilities	687,400	+130,450
POWER FACILITIES		
Electric generation: For normal operation and maintenance of Shasta and Keswick powerplants and 1st year of operation of Folsom and Nimbus powerplants. All increases due to latter 2 plants plus deferred maintenance	724,400	+192,782
Other production expense: For the purchase of power to firm the project's hydrogenerated output and to purchase reactive power to meet reactive requirements of the project system	258,000	+30,000
Transmission and distribution expense: For wheeling of Bureau power over private utility company lines—$1,613,000 (approximately 29 percent of total budget request). Meter rental $40,000, and $63,250 for operation and maintenance of Folsom and Nimbus switchyards and transmission lines, and Elverta substation	2,045,250	+224,370
Replacements and improvements: For the purchase and erection of steel towers, concrete, foundation materials, and line hardware for continuation of replacement program of wood pole structures with steel towers at strategic sites were operating difficulties are continually encountered (approximately 10 percent of 800 wood structures will require replacement—20 were replaced to June 30, 1953). Because of price advantage, steel for 2-year program (25 towers) will be ordered. Program also includes replacement of 4 1-ton pickup trucks and 2 station wagons, 1 1½ flatrack, and minor equipment and shop items	190,500	+173,500
Total obligations, power facilities	3,218,150	+620,652
Total obligations, all facilities	5,547,050	+1,010,214

Kings River Project, California

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total obligations, fiscal year 1954	------
Allotment, fiscal year 1955	$2,000
Total obligations, 1955	2,000
Allotment, fiscal year 1956	800
Total obligations, 1956	800

Work proposed, fiscal year 1956

Irrigation facilities	Program fiscal year 1956	Increase (+) or decrease (−) from 1955
Storage system: For cost of administration and billing activities under interim contract. Decrease due to fact that interim contract extends to Dec. 31, 1955 with no planned requirement for renegotiation in fiscal year 1956	$800	−$1,200
Total obligations	800	−1,200

NOTE.—Pine Flat Dam, located approximately 25 miles east of Fresno, Calif., was constructed by the Corps of Engineers with a storage capacity of 1 million acre-feet. While primarily a flood-control reservoir, stored floodwaters may be used for irrigation. Pursuant to the Flood Control Act of 1944, and the War Department Civil Appropriation Act of 1947, the Bureau of Reclamation participated in the preparation of a report on the allocation of costs presented as H. Doc. 136, 80th Cong., 1st sess. The Department of the Interior, pursuant to the Flood Control Act of 1944 and direction of the President, is to obtain repayment of the irrigation allocation. The negotiations with the Kings River water users have been under way and all parties desire that the completed reservoir be operated for maximum conservation use during the current year.

GENERAL STATEMENT

Mr. EVINS. Mr. Spencer, give us a brief statement of the scope of your work on operation and maintenance.

Mr. SPENCER. Each year since 1951, the date of the first full integrated operation of the initial features of the project, additional features have been completed. However, in fiscal year 1956, the most significant addition will occur when the Folsom power facilities and Sly Park Dam and conduit are integrated into the project system.

Folsom and Nimbus powerplants will increase the project's generating capacity from 454,000 kilowatts to 629,500 kilowatts, an increase of 38 percent. The water storage capacity of the project will increase more than 20 percent when Folsom and Sly Park Reservoirs add more than 1 million additional acre-feet of water storage.

To operate and maintain the project in fiscal year 1956, approximately $5,500,000 is required. Of this total requirement, however, it is estimated that $1,613,000 or almost one-third of the total requirements of the project, must be paid for wheeling Bureau power over private utility company lines. This amount represents the largest single fund requirement to operate and maintain the project. Apart from the power to meet project requirements, it is estimated that approximately 60 percent of all commercial power available for sale will be wheeled over private utility company lines for which the Bureau must pay a wheeling charge. It is further estimated that in fiscal year 1956, it will be necessary for the project to purchase power to firm the project's hydroelectric generator output and to purchase reactive power to meet reactive requirements of the project system. This item is estimated at $250,000. Other fund requirements are generally for the normal operation and maintenance of the project. Some sections of the canals are giving problems due to lining failures. Cracks and slippage of sections are the usual problems. In the Tracy pumping plant, the contractor is correcting pumping equipment problems. Certain wood-pole transmission structures are being replaced with steel towers at angle and other strategic sites on the East Side line. It is estimated that approximately 80 out of 800 wood-pole structures will require replacement over a 10-year period.

In fiscal year 1956 the monetary return to the Government from the operation of the project will be greater than any prior year. It is anticipated that the collections from water sales in fiscal year 1956 will be $5,500,000. This is an estimated increase of 29 percent over fiscal year 1955 water sales. It is estimated that at the close of 1956, water sales—including prior years—will top $20 million. Increased power revenue is anticipated. Estimated power sales for fiscal year 1956 are $11 million. The total accumulative power revenue at the end of fiscal year 1956 may well be in excess of $88,500,00. At the close of the year it may be estimated that the accumulative power and water revenues of the project will have exceeded $108 million.

At the commencement of fiscal year 1955, long-term water service contracts for Central Valley project water had been executed with 30 irrigation districts or water agencies and contract negotiations are in various stages of completion with 22 other districts. Amendatory contracts have been executed with 5 districts and 2 other amendatory contracts are in process of negotiation. Since fiscal year 1951, when the first power sales were made, the number of power sales contracts has risen to 25. Of these, 24 contracts are with preference customers and 1 with a private utility. It is estimated that of the almost 2,700 million kilowatt-hours estimated production in 1956, approximately 10 percent will be required for project use, 60 percent for preference customers, and 30 percent sold to the P. G. & E. Co.

Mr. EVINS. Thank you, Mr. Spencer.

Your summarized data for the Central Valley project on operation and maintenance, fiscal year 1955, was $4,567,836. Your budget request for this purpose for 1956 is $5,547,050. It is only a slight increase over the amount of last year, although in your original statement, you say your major projects are advanced upon completion.

You also are requesting $800 for Kings River project. Is that correct?

Mr. SPENCER. That is correct.

PORTIONS MAINTAINED BY FEDERAL GOVERNMENT

Mr. EVINS. What portions of the Central Valley project are still being maintained by the Federal Government at this time?

Mr. SPENCER. All of the main canal systems, the Delta-Mendota Canal, Friant-Kern Canal, and the Madera Canal are the three main canals, and Shasta Dam and Reservoir, Friant Dam and Reservoir, the Keswick afterbay dam, and the three transmission lines, backbone transmission lines from Shasta to Tracy; the Tracy pump.

Mr. EVINS. In the past the Bureau of Reclamation, as I understand, has been slow to turn irrigation features over to local interests. What progress are you making in that regard? What is the present policy?

Mr. SPENCER. At this particular time we are not making any attempt to turn the ones I have listed over, since they are operated and maintained not for any one district, but for these 30 districts which we have contracts with, to supply water, and with all the power contracts, there is no one agency who could take over this main canal system.

Mr. EVINS. What plans do you have of turning any of these facilities over?

Mr. SPENCER. At this particular time we do not have any plans. We do turn over individual project works, where we have a contract for the works. Such as the distribution systems.

Mr. EVINS. As a matter of fact, earlier you testified or some gentleman testified that the local people out there voted overwhelmingly to have the Federal Government do the whole job.

Mr. SPENCER. That was the Shafter-Wasco Irrigation District. Mr. Chairman, they asked to have us build them and we are now starting to build, or will if we get sufficient funds in this next appropriation, to build this distribution system but it will be turned over to the contracting district as soon as we have completed it and tested it out.

We have turned over numerous irrigation works to project users.

Mr. CROSTHWAIT. Just to clarify this, the general policy is that all the distribution systems, which these systems feed from the main canals, when constructed and in operating condition, are to be turned over to the water users, for operation and maintenance.

Now, the structures Mr. Spencer has outlined are the control type structures, and would create a lot of conflicts between districts, if they were turned over to any one of them. So they have to be maintained by the Bureau.

But as the distribution systems are built to get water on the land—that is the distribution systems—they are to be turned over to the individual districts for maintenance, in accordance with our general policy of doing that throughout all the area in which we are operating.

Mr. EVINS. Are the local districts paying for maintenance of their main canals?

Mr. CROSTHWAIT. For their share of it.

Mr. EVINS. Through their repayment contracts?

Mr. CROSTHWAIT. Yes, sir.

PROPOSAL BY STATE OF CALIFORNIA TO PURCHASE CENTRAL VALLEY PROJECT

Mr. JENSEN. Has the State of California ever intimated that they might be willing to take over the operation and maintenance, and to make contracts for the water user on these irrigation projects?

Mr. SPENCER. Mr. Jensen, they have gone even further than that. They have offered to buy the project back from the Government.

Mr. JENSEN. Yes; I understand that.

Mr. SPENCER. And as a part of that purchase, of course, then, they would take over all the operation and maintenance. I know of no separate proposal.

Mr. JENSEN. How much money has the Federal Government expended now, on the Central Valley project up to date?

Mr. SPENCER. Approximately $450 million.

It would be $450 million and a few odd hundreds.

Mr. JENSEN. Including this year's request?

Mr. SPENCER. No; not the 1956 request.

Mr. JENSEN. Including the 1955 fiscal year appropriation?

Mr. SPENCER. That is right.

Mr. JENSEN. And you have received in revenue, to date, some $80 million?

Mr. SPENCER. $92 million by the end of the current fiscal year.

REPAYMENTS

Mr. JENSEN. How long will it take to repay all the money that the Government has expended on the Central Valley project, if carried on under present repayment rates?

Mr. SPENCER. That is in the current repayment table, which we are going to supply for the record, which will show that it will all be repaid in the year 2013, with a surplus of 170 or 180 million dollars.

Mr. JENSEN. All will be repaid with the exception of that portion that is not reimbursable?

Mr. SPENCER. That is right.

Mr. JENSEN. What does that involve?

Mr. CROSTHWAIT. $47,561,000 allocated to flood control. $7,618,000 allocated to navigation, and $1,395,000 to fish and wildlife. All of which are not reimbursable.

Mr. JENSEN. All is without interest?

Mr. CROSTHWAIT. Power facilities carry interest and municipal and industrial water carries interest.

There is $281,367,000 allocated to power, and $21,499,000 to municipal water.

Mr. JENSEN. Altogether the Federal Government has expended how much money, for the entire project, flood control and everything?

Mr. SPENCER. $450 million through June 30 of this year.

Mr. CROSTHWAIT. The present total estimated cost of the project is $750,499,607.

Mr. JENSEN. When is the completion date set for that amount?

Mr. SPENCER. That $750 million which Mr. Crosthwait has given you includes the authorized Trinity addition for $215 million.

Mr. JENSEN. Aren't you counting your chickens before they are hatched? The Trinity project isn't even authorized yet.

Mr. CROSTHWAIT. There is a question whether it was authorized and is now again being reauthorized.

Mr. JENSEN. Of course, the Congress has taken the position that money will not be appropriated to start construction, unless the project has been specifically authorized by the Congress of the United States. We have so informed the Secretary of the Interior. We didn't pass a bill to that effect but the Secretary has received information to that effect from the committees of Congress that have to make the appropriations.

We took the position that no one man in America should have the power to authorize a project. It is more authority than any one man should ever have. It is more than any bad man should have or good man should want. After all, we have a Congress of the United States that represents the American people, and it is their responsibility to authorize projects if they see fit to do so. This finding of feasibility by a Secretary of the Interior is so adverse to our American way of doing things that I am surprised that it was ever entered into.

CONTRACT WITH CITY OF SACRAMENTO

I think it was in January 1952 when the Secretary of the Interior entered into a contract with the city of Sacramento to sell Shasta power to them. I believe Sacramento now gets about three-fifths of all the power generated at Shasta Dam. Is that right?

Mr. SPENCER. I would not be sure of that percentage. It is part of the 60 percent which now goes to Sacramento, along with the other preference, and governmental agencies. Sixty percent of it goes to Sacramento—and it is the largest one, but we do have some governmental agencies. Let's see. The Sacramento load is now around 160,000 kilowatts. We also have Mare Island with 15,000, Ames with 30,000, and a number of other smaller ones.

Mr. JENSEN. I think you will find Sacramento gets about three-fifths of the power generated at Shasta Dam.

Mr. SPENCER. Not three-fifths, because 60 percent, or three-fifths, covers all of the power that we sell. The other 30 percent goes to the P. G. & E., for the next year, and 10 percent goes to our own project pumping.

Mr. JENSEN. It was a big block of power, anyway.

Now, I have always questioned that contract. I have questioned it on this ground, that it took a lot of power and sold it to the city of Sacramento at a price which was too low to pay off the obligation which that portion of the power should pay, and sold it to one city to the detriment of the water users, and those other people who have to pay off this project or the portion of the project which is chargeable to them, over a period of years.

I have asked on at least two occasions, to have further investigation made into that contract.

What is the rate the city of Sacramento is paying for that power?

Mr. SPENCER. I can supply it for the record. I do not have it.

(The material referred to follows:)

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

Central Valley project, California

CONTRACT FOR ELECTRIC SERVICE TO THE SACRAMENTO MUNICIPAL UTILITY DISTRICT

Contract No. 14–06–200–290

There follows a statement of the rates and charges set out in the above contract under article 5 (a):

Beginning with the initial date of service, the contractor shall pay for electric power and energy supplied by the United States at the following monthly rates and charges:

Demand charge: $0.75 per kilowatt of billing demand.

Energy charge: First 130 kilowatt-hours per kilowatt of billing demand at 4 mills per kilowatt-hour; next 130 kilowatt-hours per kilowatt of billing demand at 3 mills per kilowatt-hour; excess over 260 kilowatt-hours per kilowatt of billing demand at 2 mills per kilowatt-hour.

Minimum bill: $1 per kilowatt of the contract rate of delivery for firm power.

Meter readings: Meter readings at the several points of delivery at which power and energy is supplied under this contract shall be combined for billing purposes.

Billing demand: The maximum sum of 30-minute integrated demands occurring simultaneously at all points of delivery through which electric power and energy is supplied to the contractor under this contract.

Adjustments: If delivery is made over facilities of P. G. & E., as contemplated under article 3, 5 percent discount will be allowed on the demand and energy charges applicable to such delivery. If delivery is made to the 230-kilovolt facilities of the contractor as provided in article 4, 10 percent discount will be allowed on the demand and energy charges applicable to such delivery.

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

Central Valley project, California

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Power sales to Sacramento Municipal Utility District

1954	Energy (kilowatt-hours)	Gross revenues	Average rate (mills per kilowatt-hour)
July	75,074,569	$334,170.20	4.46
August	72,318,879	315,450.75	4.36
September	70,088,826	324,656.75	4.63
October	67,512,664	308,346.33	4.57
November	66,597,790	308,215.38	4.63
Total	351,592,728	1,590,839.41	4.52

Mr. JENSEN. The rate I think is cheaper than can be justified. I can't understand and I don't think I will ever understand how the city of Sacramento was entitled to that power, even to a greater extent than any other town in the Central Valley was. I think that the city of Sacramento was favored to no end in that contract. I never will be satisfied with it. I don't know that anything can be done about it now, but I might tell you that I was one of the members of the committee who, before 1951 when the new contract was entered into by P. G. & E. to buy Central Valley power, that I insisted P. G. & E. was not paying enough for that power. I was not alone. The entire committee felt the same way and the contract was finally signed and the rates were raised.

Then, right out of the blue sky, the Secretary of the Interior signed this contract with Sacramento selling the power for even less money than he had been charging P. G. & E. before the firm contract was made in 1951. I never could understand it and I don't suppose I ever will, but it is a sore spot and I think a situation which should never have been brought about.

COST OF POWER TO PRIVATE UTILITIES

Mr. EVINS. I do not wish at this time to get into any controversy with my esteemed colleague from Iowa, a very eminent member of this committee, but I am concerned with selling low-cost power to the private utilities. I am not so greatly concerned with the low-cost power to the consumers and to the people of this country. I think that water reservoirs and the power belong to all the people and where low rates can be brought to the consumers and to the people, I find no particular personal objection, but my objection rests where this power which should go to the people is turned over to the private utilities at low rates so that they can make exorbitant profits and gouge the consumers. I am not so much concerned about the low rates which the people in California are getting. If the people are getting it I am inclined to be more for it. I am concerned where the low rates to the private utilities are not fair rates, I should say.

I just wanted to make that statement to my esteemed friend.

Mr. JENSEN. Of course the more we charge private utilities, naturally, the more they have to charge the consumers. I think the record will show that the rates the people pay in California, even to P. G. & E., is possibly the cheapest rate of any place in the United States. P. G. & E.'s rates to the consumers I think the record will show, are the cheapest rates of any place in the United States where it is charged

by utilities who, of course, have to pay local, State, and Federal taxes to the tune of almost 4 mills on every kilowatt-hour they market, which comes into the Treasury.

Mr. CROSTHWAIT. So the record will be clear, the power we are now selling to P. G. & E., of course, is only that power not required to meet our preference customers and our own loads and it is that power which, if we did not sell to them, probably would provide no revenue.

Mr. EVINS. You have also determined the reasonable wheeling charges for that type of power.

Mr. CROSTHWAIT. That is right. The wheeling costs are for moving our power over their lines.

Mr. EVINS. Mr. Spencer, Mr. Crosthwait, and Colonel Berrigan, and all of you gentlemen I think you have made excellent statements. We thank you for your testimony.

TUESDAY, APRIL 19, 1955.

CONSTRUCTION, CORPS OF ENGINEERS

SACRAMENTO RIVER DEEP-WATER CHANNEL PROJECT

Mr. MURRAY. These are some questions of the Corps of Engineers that I wanted to ask concerning the Sacramento River deep-water channel. I would certainly like to apologize for bringing them up out of order because I imagine you might have been prepared to answer them yesterday, and you might not be prepared today. So, I hope you will understand that my request was through an oversight rather than for any other reason.

I would like to know what the present status of the Sacramento River deep-water channel project is.

Colonel BERRIGAN. This project was started before the Korean war. Construction was initiated on it in 1949, and when the Korean war came along we stopped work on it. We have spent about $2,300,000 of Federal funds on the project so far, and it is about 8 percent complete.

Mr. MURRAY. When was the work originally authorized?

Colonel BERRIGAN. In the 1946 River and Harbor Act.

Mr. MURRAY. What is the position of the Corps of Engineers as to the project?

Colonel BERRIGAN. We consider it to be a sound project.

Mr. MURRAY. Did you make a recommendation to the Bureau of the Budget for it, Colonel?

Colonel BERRIGAN. This project did not meet the criteria of the Bureau of the Budget, and we did not recommend it for that reason. However, at the time of budget submission, four projects which did not meet criteria, were recommended for inclusion, should the budgetary situation permit. This project was 1 of the 4.

Mr. MURRAY. I see. Which criteria of the Bureau of the Budget did it not meet?

Colonel BERRIGAN. It failed to meet two criteria. One was that it involved large appropriations in subsequent years if we resumed it, and, secondly, it was for a deep draft harbor and it did not at the present time have deep draft commerce.

Mr. MURRAY. Is it correct that you made a report on this, or that your Department made a report on this project, on January 8, 1954?

Colonel BERRIGAN. Yes, sir. We completely restudied the economics of the project.

Mr. MURRAY. Are the economics up to date on it?

Colonel BERRIGAN. Yes; that was a very thorough report. We spent quite a bit of money in preparing that report, and we think it is perfectly sound.

Mr. MURRAY. Do you know of any changed circumstances since you reported last year that would warrant a restudy of the project, or would there be any useful purpose in a restudy?

Colonel BERRIGAN. No, sir; that would serve no useful purpose. Conditions have not changed that much since the report was made.

Mr. MURRAY. Can you comment a little bit on the extent of the local coopertion on the project?

Colonel BERRIGAN. Local interests are required to furnish all the lands and rights-of-way. They have purchased some of the land required for the project, and they have been in the process of purchasing additional land, land required to construct the port facilities. They have built a grain elevator and have contributed some money. We have received $200,000 in advanced funds from the port district, some of which we used for engineering last year.

Mr. MURRAY. How about the enabling legislation, State enabling legislation for the project?

Colonel BERRIGAN. The State, of course, has organized a port district, and I think the State of California has put $1 million of its money in this project so far.

Mr. MURRAY. If the Congress should see fit to appropriate money for the resumption of construction on this project this fiscal year, would it be possible to proceed with the work with reasonable speed?

Colonel BERRIGAN. Yes, sir.

Mr. MURRAY. In other words, the local interests have already provided easements, and so forth; is that right?

Colonel BERRIGAN. They have provided easements to go ahead; yes, sir.

Mr. MURRAY. It is my understanding that this is one of the few projects left in the United States where, predicated upon some idea of participation of the Federal Government, that the local authorities went ahead and did a lot of work on it. Is that an accurate statement or not?

Colonel BERRIGAN. We will have to ask someone from the Chief of Engineers' office about that.

Colonel ALLEN. Many of the projects that we still have uncompleted have various forms of local cooperation involved.

In this particular one the local interests have constructed terminals in anticipation of completion of the channel which will serve this deep-draft port.

Mr. MURRAY. Is it not a fact, or is it a fact, that the reason the local interests have gone ahead on it is because of their understanding that the Federal Government would perform certain obligations on its part?

Colonel ALLEN. They assumed when they initiated their construction that funds having been appropriated to initiate this project in 1949 that it would be carried to completion, which we try to do with our projects which are once initiated.

Mr. MURRAY. But is not this one of the few projects left in the United States where local interests have expended considerable funds based upon an understanding of Federal cooperation and the Federal Government has not cooperated?

Colonel ALLEN. It is one of the few major projects where that condition obtains; yes, sir.

Mr. MURRAY. Thank you.

CENTRAL AND SOUTH PACIFIC DRAINAGE AREA

WITNESSES

CORPS OF ENGINEERS

COL. PAUL D. BERRIGAN, DIVISION ENGINEER, SOUTH PACIFIC DIVISION, SAN FRANCISCO, CALIF.
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL, OCE
COL. J. U. ALLEN, ASSISTANT CHIEF OF CIVIL WORKS FOR RIVERS AND HARBORS, OCE
COL. W. F. POWERS, CHIEF, OPERATIONS DIVISION, CIVIL WORKS, OCE
B. JOSEPH TOFANI, CHIEF, PROGRAM DEVELOPMENT BRANCH, OCE
C. M. CONWAY, PLANNING AND DEVELOPMENT DIVISION, OCE

DEPARTMENT OF THE INTERIOR

W. A. DEXHEIMER, COMMISSIONER OF RECLAMATION
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER OF RECLAMATION
C. H. SPENCER, REGIONAL DIRECTOR, SACRAMENTO, CALIF.
SIDNEY D. LARSON, DIRECTOR OF DIVISION OF BUDGET AND FINANCE, OFFICE OF THE SECRETARY OF INTERIOR

Mr. EVINS. The committee will consider the program for the central and south Pacific drainage area at this time. The total request for this area is $19,440,650.

Mr. Reporter, at this point in the record you will insert the first page of the central and south Pacific drainage area justifications and other necessary fiscal data.

(The matter referred to is as follows:)

Central and South Pacific

Appropriation	Corps of Engineers	Interior—Reclamation
General investigations	$61,350	$200,000
Advance engineering and design	170,000	
Construction	17,163,000	1,000,000
Operation and maintenance	435,300	411,000
Total	17,829,650	1,611,000

BUREAU OF RECLAMATION—CONSTRUCTION AND REHABILITATION

Actual unobligated balances June 30, 1954, and Mar. 31, 1955, and estimated June 30, 1955

CENTRAL AND SOUTH PACIFIC BASIN

Project	Actual unobligated balance June 30, 1954	Actual unobligated balance Mar. 31, 1955	Estimated unobligated balance June 30, 1955; field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Cachuma, Calif.	$26	$1,365,590	$725,000	----------	$725,000
Klamath, Oreg.-Calif.	19,610	15,573	----------	----------	----------
Rehabilitation and betterment	13,325	11,800	----------	----------	----------
Total, Central and South Pacific Basin.	32,961	1,392,963	725,000	----------	725,000

CORPS OF ENGINEERS

CENTRAL AND SOUTH PACIFIC BASIN

Project	30 June 1954		31 March 1955		30 June 1955 (estimate)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Navigation: Crescent City Harbor	0	0	$45,600	$199,992	0	0
Flood control:						
Los Angeles County drainage area	[1] $80,470	[1] $2,116,064	[1] 2,491,607	[1] 3,979,794	[1] 0	[1] $550,000
San Antonio and Chino Creeks	0	0	0	0	0	0
San Antonio Reservoir	515,759	1,032,403	[2] 1,186,462	[2] 1,300,014	[2] 0	[2] 500,000
Whittier Narrows Reservoir	[3] 2,220,000	[3] 4,320,689	[4] 2,614,683	[4] 3,011,056	[4] 0	[4] 850,000

[1] Includes $706,000 loaned to project in fiscal year 1954 which is to be repaid from future appropriations.
[2] Excludes $400,000 loaned to other projects.
[3] Excludes $706,000 loaned to other projects in fiscal year 1954 on which payment was deferred in fiscal year 1955.
[4] Excludes $1,356,000 loaned to other projects.

Mr. EVINS. Colonel Berrigan, will you present a general statement on the situation in the Central and South Pacific Drainage Basin area?

GENERAL STATEMENT

Colonel BERRIGAN. The Central and South Pacific areas consist of a narrow strip along the California coastline, 1,100 miles long, extending inland generally to the crest lines of the coastal mountain ranges, and the Klamath River watershed in Oregon. The California coastline is generally regular with only a few natural harbors. Los Angeles-Long Beach harbors are the principal commercial ports in the area with other deep-draft harbors at Humboldt Bay to the north and San Diego at the south near the Mexican border. We except San Francisco from this area.

Smaller shallow-draft ports, located between the principal harbors, are used by the fishing industry for shallow-draft commerce, and by recreational craft.

The narrow inland valleys and coastal plain areas which comprise this region are composed generally of fertile alluvial soil formation,

which have relatively flat slopes, and are suitable for intensive developments. Stream gradients in the northern areas provide excellent hydroelectric power generation sites. The high elevations of the headwater areas of some streams also provide potential transbasin diversion conditions. In the south the erratic rainfall pattern and the relatively small drainage areas pose the problem of holdover storage combined with flood control. Along the coastal areas the climate is generally mild and favorable for growing specialty crops of all kinds. Rainfall distribution varies from heavy in the north to light in the south; however, high intensity rainfall may occur in any part and produce very damaging floods. Most susceptible to large flood damages are the areas along unstable eroding stream channels located in the sections where relatively flat valley slopes meet the steep mountain stream slopes. During high water stages, the high velocity mountain streams leave their channels and debouch volumes of detritus on the adjoining valley areas. Hydrology of the area varies from annual rainfalls up to 80 inches in the higher ranges in northern California to less than 15 inches at San Diego in southern California. Precipitation in the south is extremely erratic and the entire year's water supply for irrigation and domestic use may result from 1 or 2 storms. Wide variations also occur in the total annual rainfall and 1 year of adequate supply may be followed by 2 or 3 with little or no precipitation. As a result of these hydrologic extremes, the northern coastal area supports dense forests, while the southern portion of the basin is deficient in the dependable rainfall essential for sustained crop production. The most significant problems of the basin are to control floods and conserve and utilize the waterflows to the maximum extent practicable to serve the greatly increased water needs of the region which presently supports an urban and rural population of over 8 million. Ground water pumping has been continuing beyond the normal recharge rate with the result that salt water intrusion and low water tables are also causing increasing concern.

NAVIGATION

Commercial harbors for deep-draft vessels are generally adequate in the area. To meet the requirements of fishing craft and small recreational boats a chain of harbors spaced at intervals of 30 to 40 miles is planned. At present, four deep-draft commercial harbors and 13 light-draft harbors have been authorized. Of the small-craft harbors, 7 are essentially for fishing, 5 for recreational craft, and 1 for general commerce. Examinations and surveys presently authorized total 22, of which 10 are for modifications to existing harbors and 12 for consideration of additional small-craft harbors as part of the harbor chain. Three reports are actively in progress.

Eight harbor projects are essentially complete, of which four are for deep-draft commercial traffic. Work remaining to be accomplished includes minor dredging at 2 commercial harbors, additional breakwater construction or dredging at 5 shallow-draft harbors, and the initial construction of 4 authorized shallow-draft harbors. Harbors under construction include Crescent City in the north and Mission Bay in the south, scheduled for completion in fiscal years 1958 and 1957, respectively. Planning funds are available for the small-craft harbor at Redondo Beach. No new starts are proposed for fiscal

year 1956, although planning funds have been budgeted for a small-craft harbor at Port Hueneme.

FLOOD CONTROL

The authorized flood control program is designed to provide flood protection to critical flood damage areas by means of flood-control reservoirs, levees, and channel improvements. Flood control storage space has also been provided in the multiple-purpose reservoirs constructed by the Bureau of Reclamation. The program includes 9 separate basin projects, 2 of which contain numerous separable units within the overall project authorizations. Completion of the authorized flood-control program would provide a high degree of flood protection in principal drainage areas; however, other areas of flood damage will still exist after completion of the presently authorized flood-control program. Investigations and surveys of 22 areas are currently authorized; 2 are in active process.

Completed units of the Los Angeles County drainage area project include three reservoirs (Sepulveda, Hansen, and Santa Fe) and a number of channel improvements. Other units, including Whittier Narrows Reservoir, are actively under construction. The overall project, now about 40 percent complete, has been effective in reducing flood damages as its separate units have been completed and placed in operation; however, severe damages will still occur during large floods until the overall plan is completed.

Three reservoirs (Brea, Fullerton, and Prado) and certain channel improvements of the overall project for the Santa Ana River Basin and Orange County have been completed. San Antonio Reservoir is now under construction and is scheduled for completion during fiscal year 1956. It is also proposed to initiate construction of the San Antonio and Chino Creeks Channel during fiscal year 1956.

Other portions of the overall flood control program for the Central and South Pacific areas which have been completed include channel improvements on Pajaro and Ventura Rivers and the Klamath project constructed by the Bureau of Reclamation which provides flood protection for reclaimed areas. Authorized works not yet under construction include a reservoir and channel improvement on Russian River and channel improvements and levees on San Lorenzo, Santa Maria and Santa Clara Rivers.

IRRIGATION

Irrigation development in the Central and South Pacific Basin by the Bureau of Reclamation started in 1903 with initiation of the investigations which led to construction of the existing Klamath project. The Bureau's program of investigations has continued since that time and has resulted in the Cachuma project in the Santa Barbara area on which construction will be completed this year, the nearby Santa Maria project, scheduled to start construction in fiscal year 1956, and the authorized Santa Margarita project. In addition, the Bureau constructed the completed San Diego Aqueduct for the Navy Department. At present minor completion work is in progress on the Klamath and Cachuma projects and operation and mainte-

nance of both will be active in fiscal year 1956. The program of preliminary investigations to identify other feasible projects in the basin continues.

POWER

Investigations by the Bureau of Reclamation of potential hydroelectric power sites in the northern area have revealed several locations where construction of power generation plants is feasible. Bureau-constructed facilities completed to date do not provide any generating capacity and no facilities for such purposes are under construction.

OTHER FUNCTIONS

The Corps of Engineers is participating with the State of California in the solution of beach erosion problems. Three shore protection projects, involving construction of groins, breakwater rehabilitation and artificial beach fill, have been authorized for construction but have not yet been initiated. Beach restoration at Santa Barbara is also authorized in conjunction with harbor maintenance, and cooperative studies are in process for four additional coastal areas.

Because of the high cost of reservoir storage in the south coastal area, utilization is made of the porous alluvial plains for water spreading to replenish the ground water basins, which helps to supply the domestic and irrigation needs of the area on nearly all Corps of Engineers flood control projects. Notable examples are projects on Los Angeles, San Gabriel, and Santa Ana Rivers. The Corps of Engineers also cooperates with local agencies in providing recreational facilities incidental to its projects wherever practicable.

CONCLUSIONS

Full and coordinated development of the water resources of the central and south Pacific areas is essential to meet the growing needs of these heavily populated and highly developed areas of the country. The combined programs of the Corps of Engineers have been developed to serve this purpose. Navigation improvements constructed or proposed will serve the needs of commercial navigation and permit exploitation of fishing grounds and extended cruising by recreational craft. Flood control features will protect the highly developed valleys and coastal plains and wherever feasible incorporate provisions for conserving and utilizing the surplus waters so necessary to the expanding economy of the region. The activities of the Bureau of Reclamation are directed primarily toward reclamation of fertile land and provision of water supply for irrigation and municipal use. The partially completed program is already producing substantial benefits. Further orderly progress is necessary, however, if this region is to experience the relative freedom from large flood damages and lack of adequate water supplies essential to the regional and national economy.

Mr. EVINS. Thank you, Colonel Berrigan, for a very fine statement.

NEED FOR POWER FACILITIES

If I may make a general observation on your statement, I thought it was rather replete with reference to small craft harbors and recrea-

tional facilities. That is all fine, and we applaud it, but on page 5 of your statement under power you say:

Investigations by the Bureau of Reclamation of potential hydroelectric power sites in the northern area have revealed several locations where construction of power generation plants is feasible.

Then you say:

Bureau-constructed facilities completed to date do not provide any generating capacity and no facilities for such purposes are under construction.

Were there any requests for any new starts for power in this area submitted to the Bureau of the Budget?

Mr. SPENCER. No, sir.

Mr. EVINS. No requests were made of the Bureau of the Budget for funds?

Mr. SPENCER. We are still engaged in the investigations in this northern area.

Mr. EVINS. No funds have been requested and no plans have been made——

Mr. SPENCER. We do not have the plans complete.

Mr. EVINS. Although you say there are several locations which are desirable and feasible, and you recognize the potentials of them you are not asking for any funds, and you have no plans made, and you are not proceeding on that score?

Mr. SPENCER. Leaving out the Trinity, which is really a part of the Klamath River Basin, which we discussed yesterday with the Central Valley project, that is the only place where the investigations and plans are far enough along to complete a feasibility report which we have to complete first, and in accordance with the Flood Control Act of 1944, we have to circulate it to the interested agencies prior to coming in and formally asking for an authorization and funds.

Mr. EVINS. Do you not feel that there should be a little more intensification of work on the development of power in the area where sites are desirable, and a little less emphasis on the small-craft harbor facilities and recreational facilities?

Mr. SPENCER. Mr. Chairman, that is a policy question which I am not in a position to answer.

Mr. EVINS. But there has been no progress made and no work done in the power field. How many months since there has been any substantial work in this field?

Mr. SPENCER. We still have our investigating crews, but they are small crews, working in the Klamath Basin where power sites are.

Mr. EVINS. You have already determined that several locations for power-generating plants are feasible. What do you propose to do about these feasible sites?

Mr. SPENCER. When we complete the reconnaissance basin report, if there is interest in this matter locally, the next step would normally be for the local interests to request us to make a project investigation to determine its feasibility, and, if there was enough local interest in it, to attempt to get the project authorized.

SMALL-BOAT HARBORS AND RECREATIONAL FACILITIES

Mr. EVINS. Colonel Berrigan, do you find local interests approving recreational facilities and small-boat harbors?

Colonel BERRIGAN. Yes, sir, they are locally interested in them.

Mr. EVINS. Your fine statement, as I see it, places a little too much emphasis on recreational facilities and small-craft harbors. I think you are not appraising some of the fundamentals on the development of power as you go along.

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

You are requesting $61,350 for general investigations.

Mr. Reporter, insert in the record at this point pages 1 and 2 of the justifications.

(The matter referred to is as follows:)

CENTRAL AND SOUTH PACIFIC DRAINAGE AREA—JUSTIFICATION OF ESTIMATE

GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. Examinations and surveys

(*a*) *Navigation studies.*—The amount of $42,100 is requested for work on five studies in the Central and South Pacific drainage area. This amount will permit the completion of 1 report, continuation of work on 1 study, and resumption of work on 3 studies.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
California:				
Camp Pendleton Harbor and Agua Hedionda Lagoon Harbor	$47,000	$19,000	$13,000	$15,000
Los Angeles-Long Beach breakwater extension	25,000	12,000	7,000	6,000
Monterey Bay	106,400	90,000	8,000	8,400
Noyo Harbor	21,000	10,000	11,000	0
Santa Cruz Harbor	46,400	19,800	3,100	23,500
Total	245,800	150,800	42,100	52,900

(*b*) Flood-control studies.—None.

(*c*) Beach-erosion studies.—The amount of $19,250 is requested for work on two beach erosion studies in the Central and South Pacific Drainage Area. This amount will permit the completion of one report.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
California:				
State of California, appendix IV, phase 2	$15,000	0	$15,000	0
State of California, appendix V, phase 2	15,000	0	4,250	$10,750
Total	30,000	0	19,250	10,750
Grand total, examinations and surveys	275,800	150,800	61,350	63,650

Mr. EVINS. The amount requested includes $42,100 for navigation, and $19,250 for beach erosion studies.

You indicate that you are resuming work on three of these studies. Specifically which of these do you refer to as being resumed?

Colonel BERRIGAN. The funds requested for navigation investigations would permit the resumption of work on the Los Angeles-

Long Beach breakwater extension, Monterey Bay, and Santa Cruz Harbor investigations.

Mr. EVINS. Why were these studies deferred in the past?

Colonel BERRIGAN. For lack of funds, sir.

Mr. EVINS. What local cooperation and funds are you receiving from the State of California on beach-erosion studies?

Colonel BERRIGAN. On beach-erosion studies, we are receiving half of the cost of the studies from the State of California.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. Under advance engineering and design you are requesting $170,000 for planning on three projects in this area.

Mr. Reporter, insert in the record at this point the usual tabulation.

(The matter referred to is as follows:)

CENTRAL AND SOUTH PACIFIC—JUSTIFICATION OF ESTIMATE

CONSTRUCTION, GENERAL, FISCAL YEAR 1956

Advance engineering and design

Funds in the amount of $170,000 will be applied to advance engineering and design on 3 projects in the Central and South Pacific drainage area. One of these projects will be brought to the stage where construction can be initiated. The 3 projects on which planning will be accomplished have a total estimated cost of $14,520,000, and consists of 1 navigation project and 2 flood-control projects.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects: California: Port Hueneme Harbor	$5,750,000		$70,000	[1] $5,680,000
Flood-control projects:				
California:				
Carbon Canyon Dam and Channel	5,730,000	$156,000	50,000	5,524,000
Riverside	3,040,000		50,000	2,990,000
Total, flood-control projects	8,770,000	156,000	100,000	8,514,000
Multiple-purpose projects including power	None	None	None	None
Reexamination of projects in "Deferred for restudy" category	None	None	None	None
Grand total, advance engineering and design	14,520,000	156,000	170,000	14,194,000

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

Mr. EVINS. This includes $70,000 for the Port Hueneme area, $50,000 for the Carbon Canyon Dam and Channel, and $50,000 for Riverside.

Give the committee a brief statement as to what these projects encompass.

CARBON CANYON DAM AND CHANNEL

Colonel BERRIGAN. Carbon Canyon Dam and Channel is an authorized project, which has a benefit-cost ratio of 1.2 to 1.

Housing in the area to be protected by this dam has been developing quite rapidly. The area has been converted, you might say, from rural to urban use, or is being converted from rural to urban use since the time this project was authorized.

PORT HUENEME HARBOR

In the case of Port Hueneme Harbor we have spent Navy funds in working on this harbor.

This is another one of those cases where local interests built the harbor and the Navy took it over during the war. The Navy also has a guided-missile base down coast from this harbor where the erosion is very serious. They gave us funds to bypass sand from Port Hueneme south.

Mr. EVINS. Is that the Navy's principal Seabee base?

Colonel BERRIGAN. Yes, sir. This is also a recreational harbor with benefits to the Navy.

RIVERSIDE LEVEES PROJECT

Mr. EVINS. What is the Riverside project?

Colonel BERRIGAN. This project will protect the town of Riverside on the Santa Ana River against floods.

POLICY ON CONSTRUCTION OF SMALL-BOAT HARBORS

Mr. EVINS. What portion of the funds which you are requesting are for recreational purposes and benefits?

Colonel BERRIGAN. The Port Hueneme project is a fishing and recreational harbor. I would say that something on the order of 30 percent of the benefits of Port Hueneme would be classified as recreational.

Mr. EVINS. What is the policy of the Corps of Engineers at the present time with respect to the planning or the construction of small-boat harbors? I rather judge from your statement that you are going out rather extensively for these purposes. What is the present policy of the Corps of Engineers on building small-boat harbors?

Colonel ALLEN. We have not been able to include anything in our budget for several years for the construction of small-boat harbors. The Port Hueneme project has added significance, however. In addition to having benefits which are attributable to small boat facilities it has an added impact with respect to the protection of Navy property. One of the purposes of the plan is to devise adequate cost sharing for the project with the use of Navy funds. Much of the work done will be done to protect the Navy property from erosion.

CARBON CANYON DAM

Mr. EVINS. The planning reports indicate that land-acquisition costs for the Carbon Canyon Dam are very high, but that you are giving no consideration to the flowage easements. If these could be acquired, the high cost could be somewhat reduced. Do you have any comments on that, Colonel?

Colonel BERRIGAN. The real estate policy of the corps is to acquire no easements except those essential for the dam site so that, when we carry this project into the final stages of planning, we will acquire essential easements for the areas to be flooded.

Colonel STARBIRD. We have done no planning on this since the new policy went into effect. This money would reinitiate planning, and during that time we would consider the possibility of easements.

Mr. EVINS. Why did you defer work on this project in 1955?

Colonel STARBIRD. That is another project that was deferred basically because of the lack of funds with which to proceed.

RIVERSIDE LEVEES PROJECT

Mr. EVINS. What is the status of local cooperation on the Riverside levees project?

Colonel BERRIGAN. On the Riverside levees project we feel that the requirements for local cooperation will be fully met.

LOS ANGELES COUNTY DRAINAGE AREA

Mr. MURRAY. Is my understanding correct, that you contemplate the construction of channels for drainage purposes in the Los Angeles County drainage area?

Colonel BERRIGAN. Yes sir; and they are actively in progress now.

Mr. MURRAY. In the construction of the channels do you contemplate, or is it your plan to construct channels in residential areas and condemn residential property for some of these channels?

Colonel BERRIGAN. No, sir; it is not. The local interests furnish the rights-of-way, and, in general, they have been well ahead of us in acquiring the rights-of-way, and they have usually prevented residences from being built on them. In some cases there may be alinements that require some evacuation of residences.

Mr. MURRAY. Do you know of any cases in Los Angeles County where that is happening under your present plan?

Colonel STARBIRD. Undoubtedly it has happened in some cases and is happening somewhere, although the acquisition of rights-of-way, as Colonel Berrigan has mentioned, is accomplished by the local interests, and not by the Corps of Engineers.

Mr. MURRAY. I understand, and is it correct, that the local interests generally agree to the plan of the Corps of Engineers?

Colonel STARBIRD. It is generally a plan worked out with them; yes.

Mr. MURRAY. And in your present plans are there areas where you will have to evacuate residents in order to complete a channel?

Colonel STARBIRD. Yes, sir, there undoubtedly are, but the local people have taken some definite steps to try to prevent it: first by securing the rights-of-way well ahead of the time when the rights-of-way will be needed. They have secured about 45 percent of the rights-of-way or areas for the projects for which they must provide, whereas we have only accomplished about 25 percent of our work in that connection. If there is subdivision of the area and the subdivider has provided for rights-of-way, where utilities are put in after the location of the rights-of-way has been definitely determined, the utility must agree to replace that facility at the proper time in the proper place at his own cost.

Mr. MURRAY. In making your studies I assume that you consider the fact that there are residences in an area, and that you attempt to make your plan such that you will interfere with them as little as possible and that you try to avoid the eviction of persons from that area, is that correct?

Colonel STARBIRD. Yes, absolutely, sir. Of course, that is subject to the condition that the Federal Government will not have to under-

take any large increase in cost by taking some alternate alinement to avoid houses.

Mr. MURRAY. Do you weigh the convenience of the people against the amount of added expense to the Government?

Colonel STARBIRD. Generally it is the least cost solution.

Mr. MURRAY. In other words, am I correct, then, in stating that you do not consider the inconvenience to and the destruction of an individual's property?

Colonel STARBIRD. We do consider it, sir, as far as possible without increasing the cost to the Government.

There is one other thing that I should mention, sir, in that connection. Most of these stream beds follow existing channels and must follow in the future the channels that are there. The channels are inadequate to meet the needs at the present time, but they determine pretty well where the alinement should be.

Mr. MURRAY. Assume that in a particular situation the least expensive construction would be to run a channel in such a manner that 15 people would evacuate their homes, do you consider the expense of the evacuation of the homes, or do you just consider the expense to the Government in constructing the channel in a different way?

Colonel STARBIRD. Generally we try to achieve the least cost to the Federal Government with a minimum amount of disruption of the local people who are already there. We do not consider, however, that the Federal Government should realign channels away from their natural courses so as to avoid interference with them if a large additional cost is involved on the Federal Government.

Mr. MURRAY. I myself think the expense of the average individual ought to be considered.

Colonel STARBIRD. Well, as to the average individual, that individual can be certain that when his lands are acquired he is paid the fair value for those lands by the local flood-control district. If he does not believe that he is getting fair treatment from them he can always take it into court and have a determination made in court.

Mr. MURRAY. But ordinarily, as I understand it, in condemnation proceedings the court merely pays a property owner the full fair cash value of his property without considering the personal expense to the individual which might be occasioned by the move which he has to make.

Colonel STARBIRD. I think that is correct.

SMALL-BOAT HARBOR

Mr. JENSEN. How do you define a small-boat harbor?

Colonel ALLEN. A small-boat harbor is one that is used for shallow-draft vessels, both recreational and fishing craft.

Many of our small-boat harbors have both uses. They are used for recreational purposes, and they are used for fishing craft. Some of them are exclusively one or the other.

Mr. JENSEN. Is there commercial shipping of any nature going into these small-boat harbors?

Colonel ALLEN. On the California coast there is very little commercial shipping that operates at a shallow draft of 9 to 10 feet.

Mr. JENSEN. Is there any commercial freight that goes into these small-boat harbors?

Colonel BERRIGAN. Not on the California coast.

Mr. JENSEN. None whatever?

Colonel BERRIGAN. No, sir.

Mr. JENSEN. They are purely for fishing and recreation?

Colonel BERRIGAN. Yes, sir.

I would like to point out that on the west coast when you get out to sea, particularly if you are going south from San Francisco, you have to go a long way before you can get to shelter. Recreational craft are pretty well confined to the bays where they are located, and they cannot move from Los Angeles to San Francisco, for instance, without making long treacherous trips, and these small craft harbors are for the purpose of cutting the space down between them to 30 or 40 miles.

Mr. JENSEN. These small boats and craft are privately owned?

Colonel BERRIGAN. Yes, sir.

Mr. JENSEN. To what degree do the people and the State cooperate dollarwise in the improvement of these harbors?

Colonel BERRIGAN. The authorization for the project at Playa del Ray, provides that about 85 percent of the total cost of the improvement will be paid by the local interests. There is a great amount of interest not only in the development of small-boat harbors, but also in beaches and parks. The people who are interested in small-boat harbors are interested in those matters too.

Colonel ALLEN. Included in the last omnibus bill were a number of small-boat harbor projects where the costs to the local interests were assessed in proportion to the benefits derived by them from the improvements.

The policy adopted was that the Federal Government was justified in spending up to 50 percent of the cost for the benefits attributable to recreation.

If the harbor, for example, was 100 percent for recreation, then the sharing of the cost would be on a 50–50 basis between the Federal Government and local interests. If there were other benefits involved which were general benefits, such as commercial fishing, then the Federal cost would be increased proportionately.

Mr. JENSEN. What are the benefits of these small-boat harbors to the American people generally, they pay the bill?

Colonel ALLEN. The small-boat approach which we have adopted assumes that the Federal Government has a 50 percent interest in these benefits for recreation.

Mr. JENSEN. What is the basis for that assumption?

Colonel ALLEN. That was the policy which the Chief of Engineers arrived at several years ago. It was worked out with and accepted by the Bureau of the Budget. In the Public Works Committee, when these projects were authorized last year, it was recognized that the Federal Government was not justified in contributing 100 percent for these recreational harbors. However, there was some Federal interest in them from the standpoint of improving the economy of the area, eliminating damages to small craft based in the area and conserving the existing small-boat facilities. The small-boat industry has increased tremendously in the last 10 years.

There are also benefits to the boatowners by providing safe facilities for them to use, thereby avoiding damage to their vessels, avoiding

loss of life by navigating in unsafe entrance channels, and providing a means for healthful recreation.

There are also benefits to the boat operators in the area who can serve the sport fishermen using the area for sport fishing.

Mr. JENSEN. Do these small boatowners pay any sort of a harbor fee?

Colonel ALLEN. That varies with the organization of the particular port facility. In some areas they pay a mooring charge. It is not uniform throughout the country.

Mr. JENSEN. Does that fee go into the treasury of a State or the Federal Government, or just where does that harbor fee go?

Colonel ALLEN. It would not return to the Federal Government. Again that would depend on the organization of the harbor district, the port district, or the agency for which the facility was constructed.

Mr. JENSEN. The Federal Government receives no dollar benefits whatever from the harbor fees which are received from these small boat harbors?

Colonel ALLEN. Not in dollars, that is correct.

CONSTRUCTION, CORPS OF ENGINEERS

CRESCENT CITY HARBOR, CALIF.

Mr. EVINS. Under Construction you are requesting $17,163,000. The first item is Crescent City Harbor. The estimated Federal cost of the Crescent City Harbor project is $5,680,000.

The appropriations to date have been $3,359,000. The appropriation request for the fiscal year 1956 is $1 million, which would bring this project to 77 percent of completion.

Mr. Reporter, insert in the record at this point pages 6, 7, and 8 of the justifications.

(The matter referred to is as follows:)

CRESCENT CITY HARBOR, CALIF.—(BREAKWATER EXTENSION) (CONTINUING)

Location: In Crescent City Harbor, Crescent City, Calif., on the Pacific coast 17 miles south of the Oregon State line and about midway between San Francisco Bay and the mouth of the Columbia River.

Authorization: 1945 River and Harbor Act.

Benefit-cost ratio: 2.07 to 1.00.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$5,680,000	
Estimated local cash contribution		
Estimated project cost	5,680,000	
Appropriation to June 30, 1954	2,859,000	
Appropriation for fiscal year 1955	500,000	
Appropriations to date	3,359,000	59
Appropriations requested for fiscal year 1956	1,000,000	77
Balance to complete after fiscal year 1956	1,321,000	

PHYSICAL DATA

Breakwater: Rubble mound with concrete cap; station 30 + 00 to 37 + 00—southeast toward Round Rock, 22 feet wide at crest, 20 feet above mean lower low water.

Station 37 + 00 generally eastward 1,000 feet. Crest: 20 feet wide, 20 feet above mean lower low water.

Status (January 1, 1955): Station 30 + 00 to 37 + 00, complete; station 37 + 00 to terminus, 9 percent.

Completion schedule: Station 37 + 00 to terminus, October 1957.

JUSTIFICATION

Crescent City Harbor serves the needs of a tributary area of approximately 6,000 square miles embracing Del Norte County, the northern part of Humboldt County and the western portion of Siskiyou County in California and portions of Curry, Josephine, Jackson and Klamath Counties in Oregon. The existing commerce consists principally of shipments of lumber and receipts of bulk-petroleum products and fresh fish caught in nearby waters. Since resumption of lumber shipments in 1950 after about a 10-year suspension, the commerce has increased from a total of 2,158 tons in 1949 to a total of 301,100 tons in 1953 consisting of 186,000 tons of petroleum products, 113,200 tons of lumber, piles, logs, and milled lumber products, and 1,900 tons of fish, fresh and shell. This increase has been due principally to the commencement of operation of a new bulk-petroleum receiving terminal in the inner harbor and of shipment of lumber over recently constructed docks in the inner and outer harbors. The continued heavy demand for lumber and the availability of large stands of virgin timber in the area tributary to Crescent City Harbor has attracted many new timber operators to the area. Within the last 3 years the volume of lumber produced in Del Norte County has increased more than 500 percent up to 650 million board-feet annually.

Many of the new interests locating in the Crescent City area are making large capital investments in permanent installations. These industries will tend to stabilize the economy of the entire area and will encourage the establishment of other businesses in this relatively undeveloped region. Lumbering will probably continue to be the principal industry and, with modern methods of reforestation, can be continued indefinitely on a sustained yield basis.

In addition to the direct benefit to commercial navigation making regular use of the harbor, the completion of this construction will provide a needed harbor of refuge. There is a great need for such a harbor since the Pacific Ocean in the vicinity of Crescent City is subject to severe storms and high winds.

The redirected breakwater extension will protect the harbor and shipping facilities from heavy surging and swells; its completion will preclude operating delays and economic losses resulting from inability to use the facilities of the harbor because of these conditions and will reduce shoaling in the harbor, thereby reducing the cost of maintenance. Construction must continue without interruption in order to protect the existing Federal investment as well as to complete safe and suitable harbor facilities for this rapidly expanding region.

Fiscal year 1956: In order to provide an orderly and economical rate of construction with completion in fiscal year 1958 as now scheduled, $1 million will be required in fiscal year 1956 for application to construction of the breakwater extension.

COMPLETED MODIFICATIONS—CRESCENT CITY HARBOR

Work completed consists of: Outer breakwater, 3,000 feet long, southeasterly from Battery Point; inner breakwater, 1,200 feet long, northwesterly from Whaler Island; sand barrier, 2,450 feet long, from shore southwesterly to Whaler Island; harbor basin, 1,400 feet by 1,800 feet, 20 feet deep, except in rock; inner harbor basin, 800 feet by 900 feet, 10 feet deep (behind inner breakwater).

The cost of the completed work was $1,329,100, including $217,100 expended for this work from funds contributed by local interests.

REMAINING MODIFICATIONS—CRESCENT CITY HARBOR

None.

Mr. EVINS. Give us a general statement on this, Colonel Berrigan.

Colonel BERRIGAN. Crescent City Harbor is located in the northern extremity of California. The only access to it is by highway.

It is the center of a big lumber industry. The other traffic of the port is the bringing in of petroleum products for the use of the lumber industry and for vehicles using the highways going through this area.

There has been a big resurgence of lumbering in this areas as other areas have been worked out, and there is an excellent sustained yield of lumber in this areas, so that the harbor will continue to serve on a long-term basis a sustained lumbering operation.

Mr. EVINS. You are a little over 50 percent complete with this project?

Colonel BERRIGAN. Yes, sir.

LOS ANGELES COUNTY DRAINAGE AREA, CALIFORNIA

Mr. EVINS. Next is the Los Angeles County drainage area project. We will insert pages 356 through 362 of the justifications at this point.

(The matter referred to follows:)

LOS ANGELES COUNTY DRAINAGE AREA, CALIFORNIA (EXCLUDING WHITTIER NARROWS RESERVOIR) (CONTINUING)

Location: Along the Los Angeles and San Gabriel Rivers, Rio Hondo, and Ballona Creek, and tributaries thereof, in Los Angeles County, Calif.

Authorization: 1936, 1937, 1938, 1941, and 1950 flood-control acts.

Benefit-cost ratio: 2.9 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$348,000,000	
Estimated local cash contributions	0	
Estimated project cost	348,000,000	
Appropriations to June 30, 1954	119,926,000	
Appropriations for fiscal year 1955	9,700,000	
Appropriations to date	129,626,000	37
Appropriations requested for fiscal year 1956	14,000,000	41
Balance to complete after fiscal year 1956	204,374,000	

PHYSICAL DATA

Reservoirs: Sepulveda, Hansen, and Lopez Reservoirs in Los Angeles River Basin; and Santa Fe Reservoir in San Gabriel River Basin.

Debris basins: Located at the mouths of tributary canyons—17 in Los Angeles River Basin, 7 in San Gabriel River Basin, 7 in Rio Hondo Basin, and 2 in Ballona Creek Basin.

Main channels: 49.1 miles in Los Angeles River Basin, 35.6 miles in San Gabriel River Basin, 14.1 miles in Rio Hondo Basin, and 2.4 miles in Ballona Creek Basin.

Tributary channels: 53.4 miles in Los Angeles River Basin, 69.2 miles in San Gabriel River Basin, 36.4 miles in Rio Hondo Basin, and 23.7 miles in Ballona Creek Basin.

Jetties: 2 jetties at the mouth of Ballona Creek.

Bridge reconstruction: 109 in Los Angeles River Basin, 142 bridges in San Gabriel River Basin, 65 bridges in Rio Hondo Basin, and 12 bridges in Ballona Creek Basin.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Completed items:		
Reservoirs: Hansen, Sepulveda, Santa Fe, and Lopez	100	
Debris basins: At mouth of Haines Canyon, Sawpit Wash, Bailey, Carter and Auburn channels	100	

Basin	Main stream	Tributary		
	Miles	*Miles*		
Los Angeles River	32.8	27.3	100	
San Gabriel River	3.4	0.9	100	
Rio Hondo	6.5	3.7	100	
Ballona Creek	2.4	1.9	100	

Items on which work is under way or yet to be initiated in fiscal year 1955 (relocation of bridges and utilities is being completed, in general, concurrently with channel construction):		
Los Angeles River, Owensmouth Ave. to Sepulveda Reservoir: part 6	98	April 1955.
Los Angeles River, Sepulveda Reservoir to Pacific Ocean:		
Repair of Los Angeles River invert at Main and Alhambra St. bridges	0	June 1955.
Pacific Electric Ry. to Pacific Ocean, part 4 (20th St. to Willow St.) lower Los Angeles River	0	September 1955.
Pacific Electric Ry. to Pacific Ocean, part 5 (Willow St. to Wardlow Rd.), lower Los Angeles River	0	December 1955.
Rio Hondo, lower, part 4 (Washington Blvd. to Whittier Narrows Dam)	0	Do.
Sawpit Wash, part 2 (debris basin to Duarte Rd.)	0	Do.
Arcadia Wash, part 1 (Rio Hondo to Hungington Drive)	0	Do.
Eaton Wash, part 1 (Rio Hondo to Encinita Ave.)	0	Do.
Entire project	36	1969.

JUSTIFICATION

Funds should be provided annually at such a rate as to permit completion of the Los Angeles County drainage area project at the earliest practicable date. The parts of the improvements for which funds are requested for fiscal year 1956 are very important in the entire comprehensive plan for flood control in this area. The completion of these parts is essential to provide adequate protection for large sections of densely populated and highly industrialized areas in Los Angeles County. In these areas, facilities vital to mobilization and national defense are subject to serious damage or disruption by floods. Industrial establishments in the overflow area include large aircraft plants, antomobile-assembly plants, shipyards, food-processing plants, textile plants, oil refineries and oil-storage farms, oil fields, steel mills, and motion-picture studios. Many arterial highways, extensive urban and interurban transportation systems, transcontinental railroads, and large electrical-power systems are subject to inundation and damage, interrupting their essential military and domestic use. The largest concentration of aircraft industry in the United States is in Los Angeles County. The present population within the overflow area is estimated at 1,500,000; and has a property value estimated at more than $2,200 million. The lives of thousands of persons, who live in the overflow area and who work in industrial plants that contribute directly or indirectly to the national defense, are endangered. A single flood in March 1938 caused a loss of 49 lives and more than $40 million in property damage. If a similar flood should now occur, without flood control and under present conditions of economic development in the overflow area, the damages would be more than three times greater than those reported for the 1938 flood. The average annual tangible benefits from construction of the Los Angeles County drainage area project (not including Whittier Narrows Reservoir) greatly exceed the average annual charges. Large intangible benefits also would result from prevention of loss of life, interruption to traffic on transcontinental railroads and arterial highways, and interruptions in industrial production, all of which are highly important factors with respect to the national defense. The Los Angeles County drainage area project, together with the Whittier Narrows Reservoir and work planned by local interests, eventually will provide flood control on all major streams and their tributaries in and adjacent to the entire metropolitan area of Los Angeles County. The work of local interests in the Los Angeles County drainage area is keeping pace with the work of the Los

Angeles District Corps of Engineers. In addition, residents of Los Angeles County have voted and approved a bond issue for the expenditure of $179 million for storm drains to aid in the collection and control of runoff in Los Angeles County. Many of the improvements under the Los Angeles County drainage area project will provide the required outlets for these storm drains. To July 1, 1954, local interests have expended $204 million in providing required local cooperation for the Federal project; constructing supplemental works, including dams, debris basins, minor channel improvements, storm drains, and other similar improvements; and the total ultimate first cost to local interests is estimated at $700 million.

Fiscal year 1956: The requested amount of $14 million will be applied to:

Completion of parts of project to be started in fiscal year 1955:	
Los Angeles River, Pacific Electric Railway (Santa Ana Branch) to Pacific Ocean (Sepulveda Reservoir to Pacific Ocean, including Compton Creek), parts 4 and 5 (20th St. to Wardlow Rd.)	$2, 720, 000
Rio Hondo, lower, part 4 (Washington Blvd. to Whittier Narrows Dam)	2, 453, 000
Eaton Wash, part 1 (Rio Hondo to Encinita Ave.)	1, 425, 000
Sawpit Wash, part 2 (debris basin to Duarte Rd.)	750, 000
Arcadia Wash, part 1 (Rio Hondo to Huntington Drive)	1, 800, 000
Subtotal	9, 148, 000
Initiation of parts of the project in fiscal year 1956:	
Los Angeles River, Owensmouth Ave. to Sepulveda Reservoir, part 7 (Reseda Ave. to Corbin Ave.)	277, 800
Los Angeles River, soft bottom from Victory Blvd. to Dayton Ave. (Sepulveda Reservoir to Pacific Ocean, including Compton Creek)	991, 000
Los Angeles River, Pacific Electric Railway (Santa Ana Branch) to Pacific Ocean (Sepulveda Reservoir to Pacific Ocean, including Compton Creek), parts 6, 7, 11, and 12 (Wardlow Rd. to Long Beach Blvd. and Atlantic Blvd. to Pacific Electric Railway (Santa Ana Branch))	1, 272, 000
Rio Hondo, upper, part 1 (Rosemead Blvd. to Lower Azusa Rd.)	258, 500
Arcadia Wash, part 2 (Lima St. Branch)	442, 700
Subtotal	3, 242, 000
Engineering and design	950, 200
Supervision and administration	659, 800
Total	14, 000, 000

Completion of parts 4 and 5 (20th Street to Wardlow Road) and initiation of parts 6, 7, 11, and 12 (Wardlow Road to Dominguez and Atlantic Boulevard to Pacific Electric Railway (Santa Ana branch)) of the Los Angeles River channel, Pacific Electric Railway (Santa Ana branch) to Pacific Ocean (Sepulveda Reservoir to Pacific Ocean, including Compton Creek), is required to provide vital links in the lower river improvement, which would provide an outlet for completed flood-control works with a value estimated at about $200 million and for additional storm drains planned by Los Angeles County as part of its $179 million project. The capacity of these parts of the channel is inadequate, partly because of subsidence in the area, partly because of the small waterway capacities beneath the bridges, and partly because of inadequate channel capacities provided by existing low levees. The California Department of Public Works (Division of Highways) and local interests assumed the construction of part 12 of the lower Los Angeles River channel on schedule, and on that assumption have designed and scheduled construction of the Harbor Freeway, which is dependent for its alinement on the construction of the flood-control-channel improvement. Redesign and relocation of the freeway at this location would cost $2 million and is therefore highly undesirable. Delay in construction of part 12 of the lower Los Angeles River channel improvement for 1 year would result in loss of use of the freeway for that period of time, and such loss is valued at $1,600,000.

Completion of part 4 (Washington Boulevard to Whittier Narrows Dam) of the (lower) Rio Hondo channel, will complete the Rio Hondo channel from Whittier Narrows Reservoir to Los Angeles River, will provide the necessary

outlet for releases from Whittier Narrows Reservoir, and will permit the planned operation of that reservoir for flood control within the limits of the capacity of unimproved parts of lower Los Angeles River. Many industries, transportation systems, business establishments that are vital to national defense, and large residential areas in which defense workers live will be protected by the combined operation of Whittier Narrows Reservoir and the Rio Hondo Channel. In addition, the improvement will provide an urgent outlet for storm drains to be constructed by Los Angeles County as part of its $179 million project.

Completion of part 1 (Rio Hondo to Encinita Avenue) of the Eaton Wash channel, a tributary of Rio Hondo, is required to protect (1) parts of the cities of Pasadena and El Monte and several unincorporated suburban areas; and (2) three vital transcontinental transportation routes—Santa Fe Railway, Southern Pacific Railroad, and United States Highway No. 66. Several defense establishments are located in the overflow area, and many defense workers reside in the area. The improvement is also urgently needed to provide an outlet for one of the principal storm drains to be constructed under Los Angeles County's $179 million bond-issue program.

Completion of part 2 (debris basin to Duarte Road) of the Sawpit Wash channel, a tributary of Rio Hondo, is required to provide protection to (1) parts of the city of Monrovia, the community of Duarte, and nearby unincorporated areas; and (2) two vital transportation routes—the Santa Fe Railway and United States Highway No. 66. The need for this improvement has become urgent as a result of the denuding of the mountainous part of the drainage area of Sawpit Wash by forest fires in December 1953 and January 1954. Many small industries that contribute to the defense effort are located in the overflow area, and defense workers reside in the area. The channel improvement will also provide an outlet for a principal storm drain to be constructed by local interests.

Completion of part 1 (Rio Hondo to Huntington Drive) and initiation of part 2 (Lima Street Branch) of the Arcadia Wash channel, a tributary of Rio Hondo, is required to provide protection to (1) parts of the cities of Arcadia, Sierra Madre, and El Monte, and several unincorporated areas; and (2) two vital transportation routes—the Santa Fe Railway and transcontinental United States Highway No. 66. The need for this improvement has become urgent as a result of the denuding of the mountainous part of the drainage area of Arcadia Wash by forest fires in December 1953 and January 1954. Damaging flood and debris flow, resulting from a minor storm in January 1954, caused damages of about $250,000 along Arcadia Wash system. Because new vegetation cover will require 8 to 10 years for its growth, the overflow area is in a very precarious condition. Many defense workers reside in the overflow area.

Initiation of construction of part 7 (Reseda Boulevard to Corbin Avenue) of the upper Los Angeles River channel, Owensmouth Avenue to Sepulveda Reservoir, is required to provide protection to suburban land that has rapidly changed from agricultural to residential and business use. The growing residential area is populated by many workers in the major industries of Los Angeles and vicinity, especially the Lockheed Aircraft plant in Burbank, a Chevrolet plant in Van Nuys, and the many other industrial plants in San Fernando Valley. In addition, the improvement is necessary to provide an urgently needed outlet for local drainage structures, and will aid in collecting and directing floodwaters into Sepulveda Reservoir.

Initiation of the replacement of the soft-bottom channel along Los Angeles River from Victory Boulevard to Dayton Avenue with a stone-shingled bottom is required to protect the existing channel and levee structures. The existing soft-bottom channel was completed in 1939 as a part of the $70 million project. Besides lower first cost, the soft bottom was left to avoid damages to water rights of the municipal bureau of water and power, which alleges valuable riverbed percolation to its underground acquifers. As a result of the paving of the river channel and its tributaries upstream from Victory Boulevard, and of the phenomenal urban development of the drainage area, the movement of bed material to the soft-bottom sections has been sharply curtailed, and the resultant clear water has picked up its sediment load from the soft bottom of the channel. Rapid degradation has taken place, exposing the toe of the grouted-rock bank protection in some areas, and, in others, even undercutting the toe. Even normal winter flow may continue to undercut the existing toe and thereby joepardize the entire levee structure. If these levees are breached, private property valued at many millions of dollars may be damaged, transportation facilities interrupted, and countless lives imperiled. Redesign of this section will be worked out jointly with local interests so as to minimize reduction in water percolation.

Initiation of part 1 (Rosemead Boulevard to Lower Azusa Road) of the (upper) Rio Hondo channel, Peck Road to Whittier Narrows Reservoir, is required to provide protection to (1) valuable property, including several defense plants and residential, business, and industrial properties in the cities of El Monte and Arcadia, and in several unincorporated suburban areas; and (2) vital transportation routes—Southern Pacific Railroad and United States Highways Nos. 60, 70, and 99. In recent years, large housing developments have been constructed in the overflow area of Rio Hondo. The early construction of the Eaton, Arcadia, and Sawpit Wash hard-bottom channels will concentrate flows into and will increase the erosion of the natural channel of Rio Hondo. The proposed Rio Hondo channel would convey these increased and concentrated flows safely to Whittier Narrows Reservoir (to be operational in December 1955). The need for this improvement has become urgent as a result of the denuding of the mountainous part of the drainage area of Sawpit, Arcadia, and Santa Anita Washes by forest fires in December 1953 and January 1954. The improvement will also provide an outlet for several storm drains to be constructed by Los Angeles County as part of its $179 million project.

On the basis of $14 million for fiscal year 1956, it will be possible to complete, continue or initiate construction of only the minimum number of units of highest priority. The overall project is now only about one-third completed, and additional funds required to complete the project total over $204 million.

Mr. EVINS. Give us a brief statement on this item.

Colonel STARBIRD. To best explain that project, I would like to invite your attention to the small map that accompanies your justification sheet.

If you will glance at that map you will see that there are four major streams draining the Los Angeles area, an area which has a population of around 5 million people, and which is roughly 40 miles by 40 miles in dimension and which includes all or part of 21 cities.

Reading from left to right on the map, or from west to east, the first stream group is the Ballona Creek group. That creek enters the Pacific just below Santa Monica.

The second is the largest of the tributaries, one coming out of the narrows section flowing to the east and south, the Los Angeles River.

The third tributary is the Rio Hondo River which comes out of the northeast and flows down to join the Los Angeles River, about one-quarter of the way from its mouth.

The fourth and final stream is the San Gabriel River which parallels the Rio Hondo in its upper reaches, and parallels the Los Angeles River in its lower reaches.

You will note that we have already accomplished a sizable portion of work. That portion is shown in black on the map.

That includes the main stem of the Ballona River or Ballona Creek, about three-quarters of the main stem of the Los Angeles River, but leaving the lower quarter, a very vital section which passes through Long Beach, yet unfinished and on which we are now concentrating. On the Rio Hondo, in fiscal year 1956, we shall complete the channel work leading up to Whittier Narrows Reservoir from the Los Angeles River together with certain critical tributary improvement. On the San Gabriel we have completed one reservoir to date.

The total estimated cost of the project is $348 million.

It is a cooperative project and the Federal appropriations to date have been $129,626,000.

The amount carried in the budget for the fiscal year 1956 is $14 million.

Mr. EVINS. The estimated total Federal cost for all the work in the Los Angeles drainage area is $348 million, is that correct?

Colonel STARBIRD. That is not quite correct. That is the cost exclusive of Whittier Narrows which, is due to cost around $32,300,000. You will come to that project next.

INCREASE IN COSTS

Mr. EVINS. I wanted to ask you why there has been an increase of $21 million in the total project cost since last year.

Colonel STARBIRD. We have found, particularly during and since the Korean war, that this area has developed tremendously. Also this is a very old project going back to 1936, and, in fact, incorporating in it certain emergency relief work which was constructed before 1936. Because of these changes in the area and the age of the project we felt that the simple escalation process on the estimates, which we use normally for most of our projects, was not giving us a truly representative figure on the cost of the work which is still to be done on this project.

We, therefore, have accomplished reconnaissance surveys and a re-estimate of the project since last year.

Mr. EVINS. Your justification sheet indicates that you want $991,000 for work on this survey in 1956.

Colonel STARBIRD. In this particular case, that $991,000 is not for survey work, sir, but for actual construction which we have determined as necessary as a result of the surveys already undertaken. It is part of the major increase in the overall amount of $21 million.

When we originally constructed certain sections of the Los Angeles River for a length of about 10 miles overall, we did not pave the bottom.

The construction in question was completed in 1941 with some of it completed as early as 1938. The velocities in the river channel in this area are terrific. It was felt originally that we probably would not have to pave the bottom of the channel.

We have studied the situation, particularly during the last few years, and have found that the erosion in the bottom of the channel has increased, exposing the toe of the grouted rock bank protection in places. This may cause failure and damage to the entire levee structure and great property damage in view of the fact that these sections of the river are right in the middle of Los Angeles.

Mr. EVINS. Actually could not some of this fund be allocated to maintenance as you are maintaining these old walls, and so forth.

Colonel STARBIRD. No, sir; not truly to maintenance, because the work was never done before. We have not paved the bottom of the river, and this fund you are speaking of for the fiscal year 1956, $991,000, would be to effect a section of the work not previously accomplished.

Mr. EVINS. I note that you are asking for $1,400,000 for 1956 for utility relocations.

Colonel STARBIRD. The utilities concerned are utilities crossing the channel. The Federal cost for this work in fiscal year 1956 is estimated at about $1,400,000.

COMPLETION OF PROJECT

Mr. EVINS. When do you estimate that this project, or substantially all of it, will be completed?

Colonel STARBIRD. It will depend on the appropriations which are made for it, sir. We can spend $25 million or $30 million a year, and we have almost 220 million dollars worth of work to do after this fiscal year.

Mr. EVINS. And the amount required for maintenance will be substantial for years to come?

Colonel STARBIRD. A portion of the maintenance is covered by the Federal Government. The remainder is covered by local interests, and I might say that theirs is the major portion.

SAN BERNADINO COUNTY, CALIF.

Congressman FOGARTY. I understand, Colonel Berrigan, that recently there have been serious forest fires on the land above parts of San Bernadino, Calif., and these have added to the flood danger there. Can you tell us about this situation?

Colonel BERRIGAN. Yes, sir. There have been burns during calendar year 1954. San Bernadino lies directly below high precipitous mountains and the waters from those mountains pour down out of steep canyons across builtup sections of the city. In September 1954 a large area above Devils Canyon burned denuding the slopes. This necessarily increases the rate of runoff and greatly increases the quantity of debris carried out on to the flat plains below. On December 22, 1954, a second fire occurred adjacent to and west of the Devils Canyon's burn. Several thousand acres of the slopes above San Bernadino were involved. Once burned it will be 5 to 10 years before revegetation becomes effective.

Congressman FOGARTY. Do you have a project in this area?

Colonel BERRIGAN. Yes, sir. We have a project in the area authorized by the Flood Control Act of 1950. This project consists of two parts. Directly below parts of the recent burns is one-half of the project. Here we have authority to construct a diversion dam and channel to carry the waters from Devils and adjacent canyons into Lytle Creek and for the construction of levees as necessary along Lytle Creek to carry the waters safely through the city. The estimated cost of this portion of the overall project is $5 million. Devils Canyon and the work concerned lie on the western side of San Bernardino. The second portion of the project lies on the east side of San Bernardino and consists of channel improvement on Twin Creek and Warm Creek. The estimated cost of these works is $10,200,000. The benefit-to-cost ratio of the overall project is estimated as 1.17 to 1. I might mention that earlier, in mid-1953, as I remember it, a rather large burn occurred also above Twin Creek.

Mr. FOGARTY. Do you have any funds programed in the fiscal year 1956 budget for either portion of this project?

Colonel BERRIGAN. No, sir.

Mr. FOGARTY. I presume that the latest burns occurred after your current budget cycle started. Is that correct, Colonel Berrigan?

Colonel BERRIGAN. Yes sir. However, we have met with local people and studied the situation and consulted with them on their plans. I believe that the Chief of Engineers gave consideration to recommending a reallocation of its allowance for planning so as to cover this project but found it impractical to make available a sufficient amount to achieve any substantial planning.

Mr. FOGARTY. How much would it cost to complete your planning and could you spend any construction funds in the same year?

Colonel BERRIGAN. We could complete the pre-construction planning on the Devils Canyon-Lytle Creek portion within 1 year at an estimated cost of $230,000. Barring unforeseen developments which would impede progress, we could initiate construction late in the same year, expending approximately $770,000 on actual construction during the first year funds are available. On the western portion of the project along Warm and Twin Creeks we could complete the pre-construction planning at an estimated cost of $200,000, but would be unable to make any substantial expenditure for construction in the same year.

Mr. FOGARTY. Mr. Chairman, I understand the situation in San Bernardino is extremely critical and that they already have had one storm of relatively minor proportions which brought down heavy flows of water and debris from the burned canyons. I understand also that local interests have developed plans for work they will undertake at an estimated cost to them of over $1,600,000. These include supplemental diversion structures and channels which are complimentary to the corps' plan. The safety of an important portion of these local interest works is dependent upon the completion of the corps' project.

SAN ANTONIO AND CHINO CREEKS CHANNEL, CALIF.

Mr. EVINS. The next item is San Antonio and Chino Creeks Channel, Calif.

The total estimated Federal cost of this project is $12 million. The appropriations to date have been $230,000. The appropriation request for 1956 is $700,000.

Mr. Reporter, insert in the record at this point pages 35, 36, and 37 of the justifications.

(The matter referred to is as follows:)

PROJECT: SAN ANTONIO AND CHINO CREEKS CHANNEL, CALIF., (NEW)

Location: Along San Antonio and Chino Creeks, extending for about 15 miles from San Antonio Dam (under construction) to the existing Prado Reservoir on the Santa Ana River. The project is in Los Angeles and San Bernardino Counties, about 30 miles east of the city of Los Angeles, Calif.

Authorization: 1936 and 1938 Flood Control Acts.

Benefit-cost ratio: 1.40 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$12,000,000	
Estimated local cash contributions	0	
Estimated project cost	12,000,000	
Appropriations to June 30, 1954	150,000	
Appropriations for fiscal year 1955	80,000	
Appropriations to date	230,000	2
Appropriations requested for fiscal year 1956	700,000	8
Balance to complete after fiscal year 1956	11,070,000	

PHYSICAL DATA

Channels:
- Rectangular section (reinforced concrete):
  - Depth ..... 10 to 15 feet.
  - Width ..... 20 to 30 feet.
  - Length ..... 10.5 miles.
- Trapezoidal section (paved, invert of reinforced concrete and side slopes of grouted cobblestone):
  - Depth ..... 10 to 20 feet.
  - Bottom width ..... 60 to 90 feet.
  - Length ..... 3.7 miles.
- Trapezoidal section (unpaved, with levees and pilot channel):
  - Channel:
    - Bottom width ..... 336 feet.
    - Length ..... 1.5 miles.
  - Levees:
    - Height ..... 7 to 10 feet.
  - Pilot channel:
    - Bottom width ..... 100 feet.
    - Depth ..... 3 to 6 feet.

Relocations:
- Highway bridges ..... 29.
- Railroad bridges ..... 4.
- Combination highway and railroad bridge ..... 1.

Status (Jan. 1, 1955): New start.

Completion schedule:

Lands and damages, June 1957.

Relocations, December 1958.

Channels:
- Part 1 (Prado Reservoir to Chino Creek), December 1958.
- Part 2 (Chino Creek to Holt Avenue), November 1956.
- Part 3 (Holt Avenue to San Antonio Reservoir), December 1957.

Entire project, December 1958.

Justification: The project, which was certified by the President in 1950 as being essential to national defense, would prevent discharges from San Antonio Dam (now under construction) from discharging over an unstable debris cone with a highly developed area valued at more than $600 million and a population of about 120,000. Without an improved channel, floodwaters would peril the principal eastern transportation outlet from Los Angeles and its harbor. The Southern Pacific, Union Pacific, Santa Fe, and Pacific Electric Railway (a local carrier of large quantities of reloaded transcontinental freight) all cross the overflow area and are subject to critical curtailment of services. These 4 rail lines carry more than 4,000 freight cars (including military goods) and 435 passenger cars (including military personnel) per day. This traffic represents 80 percent of all transcontinental railroad traffic between Los Angeles and the East, and about 50 percent of all railroad traffic entering and leaving Los Angeles. In addition, 4 transcontinental highways (U. S. 60, 66, 70, and 99), 2 State highways, and many local roads, all vital to defense transportation, cross the overflow area and continue to be subject to critical damage unless the improvements are constructed. Many industrial plants, including tool-and-die works and electrical plants supplying highly essential military goods, a $60 million guided-missle plant, and the high-power transmission lines from Hoover Dam to Los Angeles and San Diego are subject to damage from floods along San Antonio and Chino Creeks. In addition, the large Kaiser steel mills, only a few miles from the overflow area, would be seriously affected by floods. About 23,000 acres are subject to overflow by a single flood. In 1 flood alone, in 1938, damages in this area amounted to $1,687,000. The present value of the overflow area, estimated at $250 million, is at least 200 percent greater than in 1938. Average annual benefits from construction of both San Antonio Reservoir and San Antonio and Chino Creeks Channel are estimated at $1,030,000.

Fiscal year 1956: The requested amount of $700,000 will be applied to:

Initiation of land acquisition	$92, 500
Initiation of relocations	231, 600
Initiation of construction of pt. 2 (Chino Creek to Holt Ave.) of channel	213, 000
Engineering and design	90, 000
Supervision and administration	72, 900
Total	700, 000

Construction of the San Antonio and Chino Creeks Channel improvement would permit the proper functioning of San Antonio Reservoir, now under construction and scheduled for completion in fiscal year 1956. Land acquisition and highway, railroad, and utility relocations should be initiated early to prevent increased development of property in the construction area. Construction will be initiated along that reach of channel that protects the most highly developed area.

Mr. EVINS. Colonel Berrigan, give us a statement on this project.

Colonel BERRIGAN. The San Antonio and Chino Creeks Channel project is part of the San Antonio Reservoir project in that it will dispose of the waters which will be controlled by the reservoir.

It is classified as a new start, and it is important in that the debris cone through which we are building this channel contains important transcontinental highways and important transcontinental railroads.

Mr. EVINS. Colonel, I understand the monetary authorization for this whole basin project is $35.5 million; you have expended $26 million thus far, and with the amount you are requesting, you are approaching the authorization for the whole basin.

Which portions of the project are causing the increase?

Colonel STARBIRD. Mr. Chairman, it is customary with certain of our basin projects for the Public Works Committees to recommend and the Congress to authorize a partial monetary appropriation. That does not necessarily represent the estimated cost of the project, and I believe it did not at any time represent the exact cost in this case. Each time an omnibus bill is considered, Congress examines each of those basin authorizations and, where appropriate, recommends a further increase.

Mr. EVINS. There appears to be a considerable amount of local protection involved in this project. No local cooperation is required in any of this work.

Colonel BERRIGAN. That is right, sir, with regard to the San Antonio and Chino Creeks project.

Mr. EVINS. The project is for the protection of urban areas like Pomona, Ontario, Upland, Claremont and Chino; yet there is no local cooperation required.

Colonel STARBIRD. This project has benefits other than those of purely local value. Some general benefits will be derived because of protection for the three main-line east-west railroads which come into Los Angeles: the Southern Pacific, Union Pacific, and Santa Fe. The local Pacific Electric Railroad also crosses this cone. In addition, the major east-west highways which come into Los Angeles, cross this cone. The interruption of those railroads and highways by a flood coming out of the San Antonio would have great national effects in that it would essentially cut off Los Angeles from the rest of the country.

Mr. EVINS. Does the relocation of these bridges benefit principally the railroads serving that area?

Colonel STARBIRD. The bridges are essentially being extended so that we get sufficient channel capacity under them to pass floods, so that the railroads and highways will not be put out of business in case of floods.

Mr. EVINS. Are the railroads participating in sharing the cost of these relocations?

Colonel STARBIRD. No, sir.

Mr. MURRAY. I notice on the San Antonio Creek channel, a California project, you have requested for fiscal year 1956 the amount of $92,500 for initiation of land acquisition. On this project, are you actually acquiring the lands?

Colonel STARBIRD. The easements; yes, sir.

Mr. MURRAY. What is the difference between that project and the project I inquired about before, where you say the local people are acquiring it?

Colonel STARBIRD. The 1938 Flood Control Act provides for the channel improvement projects authorized in that act and the 1936 act to be constructed with the Federal Government assuming the costs for both the relocations and the land. This is one of the projects that was authorized by the Congress under the 1938 act and, hence, no contribution from the local interests is required.

Later acts have carried the provision for the local interests to furnish the lands and rights-of-way, and the major portion of the Los Angeles project, as I mentioned earlier, falls under the later authorization.

Mr. MURRAY. In other words, am I correct in saying that the only reason in some situations local interests are required to pay the acquisition cost and the relocation costs, is because of an act of Congress without any other element behind it, or any other reason behind it?

Colonel STARBIRD. The contribution we require is that specified in the act. You are correct in that the act I mentioned does not require local contribution in the form of land and rights-of-way and relocations for channel improvement work.

Mr. MURRAY. In other words, I am correct in saying that in some of these areas where the only purpose is flood control, we require the local authorities to bear a portion of the cost and in others we do not. Is that correct?

Colonel STARBIRD. In some we do and in some we do not, dependent upon the terms of the authorizing act.

Mr. MURRAY. It is only based on the act; no other element of safety, public health and welfare is involved; is that correct?

Colonel STARBIRD. That is correct. The policy was changed by the 1941 act for projects in that act and in all later acts the 1941 policy has been followed.

Mr. MURRAY. On this initiation of relocations, I notice for the fiscal year of 1956 you have estimated some $231,600. What does the initiation of relocation mean? Does that mean you will pay the people for their expense necessitated by the use of the territory by the Government.

Colonel BERRIGAN. No, sir. This means we will start work on some of those bridges that need to be extended and need to have sufficient capacity to pass floods, and build channels. It means that we will start work on some of the bridges.

Mr. MURRAY. Are those bridges just bridges that are used by the general public, or are some of the bridges used just by the railroads?

Colonel BERRIGAN. Both.

Mr. MURRAY. Are there some that are just used by the railroads?

Colonel BERRIGAN. Yes, sir. There are some just used by the railroads.

Mr. MURRAY. Suppose there happened to be a store in this area, would you pay the owner of a retail grocery store, say, to change his location?

Colonel BERRIGAN. Yes, sir. However, I do not believe it would be involved in this area. This is pretty rough country.

Mr. MURRAY. But you would in an appropriate case?

Colonel BERRIGAN. Yes, sir.

SAN ANTONIO RESERVOIR

Mr. EVINS. For the San Antonio Reservoir the estimated cost is $7,325,000; the appropriation to date is $6,795,000, and the appropriation requested for fiscal year 1956 is $530,000, which will bring this project to 100 percent completion.

We will insert in the record at this point pages 42, 43, and 44 of the justifications.

(The matter above referred to is as follows:)

PROJECT: SAN ANTONIO RESERVOIR, CALIF. (CONTINUING)

Location: On San Antonio Creek at the canyon mouth, about 4 miles north of Claremont, Calif., 10 miles upstream from Chino Creek, and 16 miles upstream from Prado Reservoir on the Santa Ana River.

Authorization: 1936 and 1938 Flood Control Acts.

Benefit-cost ratio: 1.40 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$7,325,000	
Estimated local cash contributions	0	
Estimated project cost	7,325,000	
Appropriations to June 30, 1954	4,495,000	
Appropriations for fiscal year 1955	2,300,000	
Appropriations to date	6,795,000	93
Appropriations requested for fiscal year 1956	530,000	100
Balance to complete after fiscal year 1956	0	

PHYSICAL DATA

Dam:

Type—rolled-fill earth embankment.

Height—160 feet.

Length—3,850 feet.

Spillway:

Type—Uncontrolled chute spillway in right abutment.

Capacity—(maximum water surface) 54,000 cubic feet per second.

Reservoir capacity:	*Acre-feet*
Flood control	7,110
Debris	2,000
Total	9,110

Outlet works:

Type—Conduit with 3 gates, 5 feet 8 inches by 10 feet, on right bank.

Design outflow—8,000 cubic feet per second.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Lands and damages	100	
Relocations	90	June 1956.
Reservoir (clearing)	100	
Dam	41	February 1956.
Embankment	42	December 1955.
Spillway	14	January 1956.
Outlet works, stage I	100	
Outlet works, stage II	0	February 1956.
Gates and appurtenances	100	
Standby generator and controls	0	February 1956.
Buildings, operational	4	Do.
Permanent operating equipment	0	December 1955.
Entire project	62	June 1956.
Dam closure		November 1955.

Justification: General. Construction of San Antonio Reservoir, together with San Antonio and Chino Creeks channel, would prevent the disruption by floods of the principal transportation outlets to the East from Los Angeles and its harbor. The Southern Pacific, Union Pacific, Santa Fe, and Pacific Electric Railway (a local carrier of large quantities of reloaded transcontinental freight), all cross the overflow area, and during floods are subject to critical curtailment of services. These four rail lines carry more than 4,000 freight cars (including military goods) and 435 passenger cars (including military personnel) per day. This traffic represents 80 percent of all transcontinental railroad traffic between Los Angeles and the East, and about 50 percent of all railroad traffic entering and leaving Los Angeles. In addition, 4 transcontinental highways, 2 State highways, and many local roads cross the overflow area and will continue to be subject to critical flood damage unless the improvements are constructed. Many industrial plants, including tool-and-die works and electrical plants supplying highly essential military goods, a $60 million guided missile plant, and the high-power transmission lines from Hoover Dam to Los Angeles and San Diego are subject to overflow from floods originating above San Antonio Dam. In addition, the large Kaiser steel mills, only a few miles from the overflow area, would be seriously affected by floods. About 23,000 acres along any one course would be flooded by a single flood equal in magnitude to that of the standard project flood; and about 57,000 acres are subject to overflow and damage at different times because of the tendency of San Antonio Creek to alter its course. In one flood alone, in 1938, damages in this area amounted to $1,687,000. The present value of the 23,000-acre overflow area is estimated at $250 million and the present value of the 57,000-acre area subject to damage is estimated at $600 million; these values are at least 200 percent greater than in 1938. Average annual benefits are estimated at $1,030,000.

Fiscal year 1956: The requested appropriation of $530,000 will be applied to—

Complete relocations	$82, 500
Complete dam: Embankment, spillway, stage II of outlet works, and standby generator and controls	361, 000
Complete operational buildings	23, 500
Permanent operating equipment	9, 700
Engineering and design	13, 100
Supervision and administration	40, 000
Total	530, 000

The appropriation requested will complete the project. It amounts to only 7 percent of the total cost, yet no benefits will be obtained without it. Moreover, the uncompleted work will be in a vulnerable position until the dam closure is effected.

WHITTIER NARROWS RESERVOIR, CALIF.

Mr. EVINS. Next is Whittier Narrows Reservoir, Calif. We will insert the appropriate justification pages in the record at this point.

(The matter referred to follows:)

Whittier Narrows Reservoir, Calif.

Location: On Rio Hondo and San Gabriel River, 8 miles above the confluence of Rio Hondo and Los Angeles River, 21 miles above the mouth of San Gabriel River, and 10 miles east of Los Angeles, Calif.

Authorization: 1936 Flood Control Act, as modified by 1941 Flood Control Act.

Benefit/cost ratio: 1.73 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$32,300,000	
Estimated local cash contributions	0	
Estimated project cost	32,300,000	
Appropriations to June 30, 1954	27,867,000	
Appropriations for fiscal year 1955	3,500,000	
Appropriations to date	31,367,000	97
Appropriations requested for fiscal year 1956	933,000	100
Balance to complete after fiscal year 1956	0	

PHYSICAL DATA

Dam:

Type: Earth fill.

Height: 55 feet (maximum above streambed).

Length (exclusive of 2,000 feet of training embankment along San Jose Creek): 14,960 feet.

Spillway:

Type: Tainter gate controlled, concrete submerged weir (invert at streambed), discharging into San Gabriel River.

Capacity (maximum water surface): 250,000 cubic feet per second.

Number and size of gates: 9, 50 by 29 feet.

Reservoir capacity:	*Acre-feet*
Flood control	35,000
Other	0
Total	35,000

Outlets:

Type: Tainter gate controlled, discharging into Rio Hondo

Number and size of gates: 4, 30 by 19 feet.

Design outflow: 40,000 cubic feet per second.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Lands and damages	87	September 1955.
Relocations	87	February 1956.
Reservoir, clearing	43	June 1955.
Dam	79	December 1955.
East embankment and spillway (except gates)	100	
West embankment, stage III	54	Do.
Outlet works structure and electric equipment	66	May 1955.
Gates and appurtenances	41	October 1955.
Relief wells	0	December 1955.
Access roads	0	June 1955.
Channels	66	January 1956.
San Gabriel approach; San Jose approach, stage I; and flood-flow channels.	100	
San Jose approach channel, stage II	0	October 1955.
Rio Hondo approach channel	44	January 1956.
Buildings, grounds, and utilities	0	December 1955.
Permanent operating equipment	0	June 1955.
Entire project	82	February 1956.
Dam closure	----------	November 1955.

JUSTIFICATION

Whittier Narrows Reservoir, a key unit in the overall plan for flood protection in Los Angeles County, will provide flood protection to 60,000 acres of highly developed industrial, residential, and agricultural lands within the Los Angeles metropolitan area. The industrial properties—all of which are vital to peacetime as well as to wartime economy—include North American, Douglas, and other major aircraft plants, oil refineries, including those of the Richfield, Union, Shell, General Petroleum, Texas, Tidewater Associated, and Standard Oil companies; automobile factories and assembly plants, including those of the Ford, General Motors, Studebaker, and Kaiser-Frazer companies; important harbor facilities and shipyards; main transcontinental railways and highways; United States naval installations, including the Los Alamitos Air Station and the Ammunition and Net Storage Depot near Seal Beach; and many other smaller, but important facilities. The present value of all classes of property is over $300 million, and present trends of development are constantly increasing this value. The flood of 1938 caused damages amounting to $3,300,000 along San Gabriel River and Rio Hondo from canyon mouths to Pacific Ocean. Damage below Whittier Narrows Reservoir would comprise most of this damage. A recurrence of this flood under present conditions of development in the flood plain would cause damages estimated at over $11 million. Average annual flood-control benefits for the project are estimated at $2,193,000. This is an essential project which will provide fully justified protection against floods for an area that contributes substantially to the defense mobilization and national economy, and every effort should be made to expedite construction. About 1 million persons reside within this overflow area. An adjacent densely populated and highly improved area of 100,000 acres will be benefited indirectly by completion of the reservoir. The project is well justified by the tangible benefits. In addition, large intangible benefits will result from savings in loss of life, prevention of crippling interruptions to industrial and business activities related to the national defense, and prevention of the unsanitary conditions that would result from floods.

Fiscal year 1956: The requested appropriation of $933,000 will be applied to:

Complete acquisition of lands and damages	$803,000
Complete construction of San Jose approach channel, state II	39,600
Complete buildings, grounds, and utilities	16,400
Engineering and design	4,500
Supervision and administration	69,500
Total	933,000

The need for completing Whittier Narrows Reservoir as scheduled in fiscal year 1956 is urgent because the constant risk of large flood damage should be removed as soon as possible. In addition, the completion of concomitant channels is scheduled on the basis of completing Whittier Narrows Reservoir in fiscal year 1956. The appropriation requested will complete the project. It amounts to only 3 percent of the total cost, yet no benefits will be obtained without it. Moreover, the uncompleted work will be in a vulnerable position until the dam closure is effected.

Mr. EVINS. For the Whittier Narrows project, the estimated Federal cost is $32,300,000; the appropriations to date are $31,367,000. The project is 97 percent complete. The appropriation request for fiscal 1956 is $933,000, which will bring the Whittier Narrows Reservoir project to 100 percent completion.

If the colonel wishes to make any comment on the purpose of these projects, we will be pleased to receive his statement.

Colonel BERRIGAN. In both projects we are making closure before next winter's rains so that they will be effective in preventing floods during the winter of 1955–56.

Mr. EVINS. There will be extensive work in connection with completing Whittier Narrows. What is the nature of the project?

Colonel BERRIGAN. Whittier Narrows Reservoir is located on both the San Gabriel and Rio Hondo Rivers. It controls the flood waters coming down from a portion of the drainage area of the Rio Hondo

and recontrols the San Gabriel which is already partially controlled by the Santa Fe Dam.

The channel of the Rio Hondo, which will carry flood discharges into the Los Angeles River, could not be designed to have a capacity to carry the very highest peak flows. This reservoir will serve to take off the peaks of floods with discharges from the reservoir carried down the Rio Hondo channel into the Los Angeles River and into the ocean.

Operation and Maintenance, Corps of Engineers

Mr. Evins. Under "Operation and maintenance," the Corps of Engineers is requesting $435,300. We will insert in the record page 57 through 59 of the justifications.

(The matter referred to follows:)

Central and South Pacific Basin—Justification of Estimate

Operation and Maintenance, General, Fiscal Year 1956

1. Navigation

(*a*) *Channels and harbors.*—The work to be accomplished under this activity consists of accomplishing essential maintenance dredging of the bar, entrance, and inner channels at Humboldt Harbor and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $232,000 for fiscal year 1956 is required for essential maintenance work on the project listed as well as surveys at about some 10 projects. The project listed has been subjected to an economic analysis and it has been determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly structural repairs and the maintenance of moderate and shallow-draft navigation channels. This condition continues to exist.

Project and tentative allocation, fiscal year 1956

	Amount
California, Humboldt Harbor and Bay	$180,000
Condition surveys	52,000
Total	232,000
Total navigation	232,000

2. Flood control

(*a*) *Reservoirs.*—The budget estimate of $150,000 provides for the operation and ordinary maintenance of nine flood-control reservoirs in the Central and South Pacific Basin during the fiscal year 1956, and nondeferrable rehabilitation work. The amount requested in fiscal year 1956 is $34,000 more than the amount available in fiscal year 1955. This increase is due to the addition of San Antonio Reservoir and Whittier Narrows Reservoir as operating units in the present system. The amount requested is the minimum necessary for adequate and efficient operation and maintenance of the projects.

Project and tentative allocation, fiscal year 1956

California:	Amount
Brea Dam	$11,000
Fullerton Reservoir	9,000
Hansen Dam	21,000
Lopez Dam	4,000
Prado Dam	26,000
San Antonio Reservoir	13,000
Santa Fe Dam	21,000
Sepulveda Dam	24,000
Whittier Narrows Reservoir	21,000
Total flood control reservoirs	150,000

(*b*) *Other (including channel improvement projects, miscellaneous maintenance items and inspections).*—The budget estimate of $53,300 provides for the minimum growth and debris removal, repairs and invert and bank paving, condition surveys, and miscellaneous maintenance on the Los Angeles County drainage area ($70 million) project and for inspection of completed works within the basin. The estimate includes $4,000 for condition surveys in order to establish the extent of rehabilitation work necessary to place the Los Angeles County project in proper condition for transfer to local interests when legislation becomes available authorizing the termination of Federal responsibility for its maintenance.

Project and tentative allocation, fiscal year 1956

California:	Amount
Los Angeles County drainage area	$50,000
Inspection of completed works	3,300
Total flood control, other	53,300
Total flood control	203,300
Grand total, Central and South Pacific Basin	435,300

WHITTIER NARROWS RESERVOIR

Mr. JENSEN. For the Whittier Narrows Reservoir, I see of the $933,000 construction request you are asking for $803,000 to complete the acquisition of lands and for damages. I am interested in knowing what you pay on an average for an acre of land in that area.

Colonel BERRIGAN. Land in that area is, of course, highly developed. It contains numerous oil wells; it contains a small refinery; some schools, housing, residential property, and fish ponds. One of the big expenses in lands is in connection with the oil wells. For wells that continue to operate, the tanks will be moved off to the side of the reservoir, and the oil will be pumped to these tanks.

Mr. JENSEN. The greater part of the money is spent not for acres of land, but for such things as you have just explained?

Colonel BERRIGAN. Yes, sir.

Mr. JENSEN. Was it necessary to buy all of this in order to get this reservoir site?

Colonel BERRIGAN. At the time the project was started the policy was to acquire the reservoir area in fee. However, we are still negotiating with the people that own the refinery and own the oil wells. It appears that the refinery and the oil wells will continue to operate within the reservoir. We will just pay them damages incidental to the fact that they have to change their method of operation.

Mr. JENSEN. They will continue to operate, even though the land is inundated?

Colonel BERRIGAN. Yes, sir. This area will be flooded quite infrequently and they are going to take the tanks in the reservoir and put them up on the bench outside of the reservoir and pipe the oil into these tanks.

Mr. JENSEN. And you will pay for all of that?

Colonel BERRIGAN. Yes, sir; but much less than by putting the oil wells out of business.

Mr. JENSEN. It is pretty expensive work.

Colonel BERRIGAN. Yes, sir.

Mr. EVINS. When will the San Antonio and Whittier Narrows projects become operational?

Colonel BERRIGAN. During the coming fiscal year.

Mr. EVINS. I understand the budget is providing operational funds for these projects for the first time next year. How much do you expect these operational funds will amount to annually?

Colonel BERRIGAN. For San Antonio, something of the order of $20,000 a year.

Mr. EVINS. What about Whittier Narrows?

Colonel BERRIGAN. $38,000 for Whittier Narrows.

LOS ANGELES COUNTY DRAINAGE AREA

Mr. EVINS. The Los Angeles County drainage area project is one of the several local protection projects in this county, largely maintained at Federal expense. The committee has been trying for years, I understand, to shift some of the burden of this maintenance to Los Angeles County. Is Los Angeles County spending any funds for maintenance?

Colonel STARBIRD. Yes, sir. They make very extensive expenditures for maintenance. For the authorization of $70 million set forth under the 1936 act, we are maintaining the sections of the channel concerned. All the remainder is turned over to local interests for their maintenance, and it is estimated that the cost to them of the maintenance of the federally constructed project will be around $850,000 a year.

Mr. EVINS. What is the status of the legislation authorizing termination of the Federal responsibility for this maintenance?

Colonel STARBIRD. I believe legislation to that effect is under consideration by the Public Works Committee.

Mr. EVINS. I understood the Bureau of the Budget had made certain recommendations based on data received from the Corps of Engineers in this respect.

Colonel STARBIRD. At the request of the Bureau of the Budget, we resubmitted for the use of the Public Works Committees language that would be suitable to achieve the purpose expressed by this committee in its report on the fiscal year 1954 appropriation bill.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Mr. EVINS. Now let us turn to the justifications of the Bureau of Reclamation, Department of the Interior, and we will insert in the record pages 1, 2, 3, 7, 8, and 9.

(The matter above referred to is as follows:)

General Investigations, Central and South Pacific Basin

Allocations of appropriation, fiscal year 1955	$274,317
Contributions	404,743
Total obligations, fiscal year 1955	679,060
Estimated allocation of appropriation, fiscal year 1956	200,000
Contributions	425,000
Total obligations, fiscal year 1956	625,000

The appropriation of general investigation funds for the Central and South Pacific Basin provides for the planning of the basin and project developments of the Bureau of Reclamation for the utilization of the water resources of that basin.

The program of general investigations may include:

(1) Engineering and economic investigations to determine the feasibility of potential relamation projects. These investigations may consist of reconnaissance surveys to establish with a minimum of time and funds, the justification for further detailed study; basin surveys to establish basinwide plans, or detailed studies of the feasibility of specific projects.

(2) Advance planning to prepare newly authorized projects for construction;

(3) Investigations of existing projects necessary for rehabilitation, financial adjustments or water conservation.

In the past, the general investigations program included, where appropriate, small allowances for necessary transfers of funds or reimbursements to other agencies, such as the Geological Survey, Fish and Wildlife Service, National Park Service, Weather Bureau, Coast and Geodetic Survey, Department of Agriculture, etc., for work over and above their regular programs which those agencies perform in connection with the Bureau's investigations of specific potential projects and which these other agencies are better equipped to do. The request for fiscal year 1956 includes funds for this same purpose and in addition, it includes for the first time a request for funds for transfer to the Fish and Wildlife Service for basinwide studies of that agency in connection with basin investigations by the Bureau of Reclamation where such investigations are underway.

The General investigation program for the current fiscal year in the Central and South Pacific Basin is $679,060 which is financed with appropriated funds in the amount of $274,317 and contributions of $404,743. With these funds, planning activities will be under way on a total of 12 investigations. Of this total, 8 will be a continuation of studies under way at the beginning of the fiscal year and 4 will be investigations being initiated or resumed. Seven of these investigations will be completed.

The request of $200,000 for fiscal year 1956 for this basin plus contributions in the amount of $425,000 will be utilized for planning activities on a total of 6 investigations of which 5 will be continuations of prior year investigations and 1 will be initiation or resumption of a new investigation. Of the total, one will be completed in fiscal year 1956. The activity breakdown of work proposed in fiscal year 1956 compared with the program for fiscal year 1955 is shown in the following "Summary by activities," and the details of the program proposed is presented in the accompanying tabulation entitled "Schedule of General Investigations Program, Fiscal Years 1955 and 1956."

Summary by Activities—Central and South Pacific Basin

Estimated costs of investigations in the current program

Activity	Estimated total	Total, June 30, 1954	Program, fiscal year 1955	Program, fiscal year 1956	Balance to complete
Engineering and economic investigations	$2,029,489	$1,144,848	$292,802	$215,000	$376,839
Advance planning	1,303,249	441,991	386,258	410,000	65,000
Total cost	3,332,738	1,586,839	679,060	625,000	441,839
Total obligation program			679,060	625,000	
Less: Unobligated carryover and funds advanced			−404,743	−425,000	
Allocation of estimate			274,317	200,000	

Schedule of general investigations program, fiscal years 1955 and 1956, Central and South Pacific Basin

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigation:							
Reconnaissance, region 2: Calleguas Creek Basin.	California	$60,000		$60,000			Reconnaissance for the purpose of establishing a source of water supply for the Calleguas Municipal Water District. Report to be completed in current fiscal year and project investigation will start in 1957 if reconnaissance is favorable.
Subtotal, reconnaissance		60,000		60,000			
Basin surveys, region 2:							
Lower Klamath River and adjacent basins.	California	420,000	$90,587	70,000	$60,000	$199,413	Investigation, in progress, to inventory the national resources and prepare plan for their orderly development in the north coastal area of California.
San Luis Obispo County Basin	do	168,000	156,846	11,154			Investigation to determine feasible means for local water development, scheduled for completion in fiscal year 1955.
San Ynez River Basin	do	59,400	51,222	8,178			To complete investigation, to establish water requirements and supply and recommend a plan for development. Portion of funds being advanced by potential water users.
Upper Klamath River Basin	California-Oregon	610,000	585,716	24,284			Survey to prepare inventory of natural resources and a comprehensive plan for their development which is needed to meet growing water and power demands for agriculture and industry. Work to be completed in fiscal year 1955.
Subtotal, basin surveys		1,257,400	884,371	113,616	60,000	199,413	
Project investigations, region 2:							
Butte Valley project	California-Oregon	215,000	27,174	60,400	80,000	47,426	Investigation of the feasibility of an irrigation or multipurpose project in Butte Valley of the Upper Klamath Basin.
Cachuma project extensions	California	100,000		45,000	50,000	5,000	Investigation of the feasibility of a plan to provide water for the Santa Ynez uplands and a portion of the Goleta County Water District; also to study the development of the Hot Springs and Salsipuedes reservoirs. 50 percent of funds contributed by local interests. Work to be substantially completed in fiscal year 1956.
Central Valley project, Trinity River Division.	do						Transbasin diversion. (See Central Valley Basin.)
Klamath project, upper Lost River Division.	California-Oregon	150,000			20,000	130,000	Investigation to determine the [illegible] development on Lost River to increase the irrigation water supply and flood protection for Klamath

River Division.							Transbasin diversion. (See Central Valley Basin.)
Klamath project, upper Lost River Division.	California-Oregon	150,000			25,000	125,000	Investigation to determine the economics of further development on Lost River to increase the irrigation water supply and flood protection for Klamath project lands, to develop a major waterfowl habitat at Clear Lake to compensate for future settlement of Tule Lake Division lands, and to generate hydroelectric power.
Klamath project extensions		130,089	129,589	500			Funds required to complete and process feasibility study of an extension of an existing project.
Ventura project	California	117,000	103,714	13,286			Funds required to complete this feasibility study early in fiscal year 1955.
Subtotal, project investigations.		712,089	260,477	119,186	155,000	177,426	
Total, engineering and economic investigations.		2,029,489	1,144,848	292,802	215,000	376,839	
Advance planning:							
Region 2:							
Santa Maria project	California	292,249	242,249	50,000			Project authorized by Congress in August 1954. Vaquero Dam would supply about 18,000 acre-feet annually to an area of failing ground water supply and provide a measure of flood control.
Ventura project	do	720,000	[1]	320,000	400,000		The feasibility report is scheduled for completion in fiscal year 1955. Project would provide irrigation and municipal water supply for about 25,000 acres by means of a dam and conduit system. Need for additional water is so great in this area that local interests are contributing 100 percent of the funds scheduled for advance planning in order to expedite the final plans.
Region 3: Santa Margarita project	do	291,000	[2] 199,742	16,258	10,000	65,000	Prepare definite plan report and prepare plans and estimates for Fallbrook connection. Authorized July 28, 1954.
Total, advance planning		1,303,249	441,991	386,258	410,000	65,000	
Total cost		3,332,738	1,586,839	679,060	625,000	441,839	
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.							
Total obligations				679,060	625,000		
Method of financing:							
Allocation of appropriation				274,317			
Prior year balance available							
Contributions				404,743	425,000		
Allocation of appropriation requirements.					200,000		

[1] Does not include prior year costs shown under "Project investigations."
[2] Includes cost of project investigations.

GENERAL STATEMENT

Mr. EVINS. Mr. Spencer, would you give us a general statement as to your request of $200,000 for general investigations?

Mr. SPENCER. For the fiscal year 1956, $5,175,000 is being requested to continue the general investigation program throughout the 17 Western States, Alaska, and Hawaii. It is estimated at this time that $200,000 of the total request will be utilized in the Central and South Pacific Basin. This amount plus contributions in the amount of $425,000 will be utilized for planning activities on a total of 6 investigations of which 5 will be continuations of prior-year investigations and 1 will be initiation or resumption of a new investigation. Of the total, one will be completed in fiscal year 1956.

Included in the fiscal year 1956 program will be a continuation of work on the upper Klamath River Basin survey and project feasibility studies on the Butte Valley project, the Cachuma project extensions and the upper Lost River division of the Klamath project.

In addition $10,000 of appropriated funds will be utilized for advance planning activities on the authorized Santa Margarita project and $400,000 of contributed funds will be utilized for similar work on the proposed Ventura project.

The rapid population growth that has taken place in the State of California and particularly the southern portion of this basin in the past decade has created a demand for production of food fiber that has far outstripped the available local supply. Further expansion and economic growth is dependent to a great extent upon the availability of additional water to bring increased acreage into production. Because of the ready market and the extremely favorable climate for farming, there is a great demand for additional irrigation development.

However, the present supplies of practically all the major streams in the southern portion of this basin are being overdrawn. In many instances the demand on underground water aquifers is exceeding the replenishment of that supply and the ground-water tables are being lowered at an alarming rate. As a result there is a pressing need for conservation and control developments in this area, and the only practical means of meeting this demand is an adequate planning program.

In the northern portion of the central and southern basin the extensive water and land resources are relatively undeveloped, and many opportunities exist for further expansion. In this area the future destiny of the basin's economic expansion is largely dependent upon the development of its water and land resources.

Mr. EVINS. Mr. Spencer, I will read into the record the summary and check me if I am not correct: Total obligations for 1956, $625,000 for general investigations.

Mr. SPENCER. Yes, sir.

Mr. EVINS. Of which $200,000 represents estimated allocation of appropriation for specified projects. The total cost is $215,000 for engineering and economic investigations, and $410,000 for advance planning.

Mr. SPENCER. Yes, sir.

Mr. EVINS. I notice on page 2 you make this statement:

The request for fiscal year 1956 includes funds for this same purpose—

speaking of allowances for transfers of funds or reimbursements to other agencies such as the Geological Survey, Fish and Wildlife Service, National Park Service, Weather Bureau, Coast and Geodetic Survey, Department of Agriculture, and so forth, and you state:

* * * in addition, it includes for the first time a request for funds for transfer to the Fish and Wildlife Service for basinwide studies of that agency in connection with basin investigations by the Bureau of Reclamation where such investigations are underway.

REIMBURSEMENT TO OTHER AGENCIES

Funds are now transferred to the Fish and Wildlife Service. What is the nature of these new funds; are they needed and required?

Mr. SPENCER. In this area of the Central Pacific, which the Bureau of Reclamation calls the Klamath Basin, we are engaged in a basinwide survey of possible reclamation development. Included in that is determining the overall resources of the area. One of the very important resources is the fish, especially the salmon and steelhead and, in order for the Fish and Wildlife Service to make an accurate report, it is necessary for them to put on a 4-year program, since there is a 4-year cycle for the development of the salmon and steelhead. That is, the fish are spawned in fresh water, in small streams in the mountains, and then drift downstream and into the ocean, spend their adult life in the ocean, then return to the original spawning ground, spawn, and die. It takes a 4-year study of that to evaluate this program.

Mr. EVINS. A large amount of your funds are for reimbursement to other agencies, and this year you have added an additional agency. How much of this fund do you anticipate will be expended for the Fish and Wildlife Service?

Mr. SPENCER. I do not have the figures with me.

Mr. EVINS. Can you supply them?

Mr. CROSTHWAIT. We will supply that. Let's be sure we understand what you want. You want to know, of this amount we are allocating to this basin, what portion will be transferred to Fish and Wildlife Service, or do you want the total of our GI funds that will be transferred to Fish and Wildlife Service.

Mr. EVINS. Of "General investigation" funds, how much are you expending for repayment to other agencies of the Government, and specifically how much do you propose to pay next year to the Fish and Wildlife Service of this fund under "General investigations"? You specify a certain amount, but it is not broken down as to how much to each one.

Mr. CROSTHWAIT. We will supply that for the record.

(The following information was supplied later:)

Estimated transfers to other agencies from "General investigations" appropriations for fiscal year 1956

Corps of Engineers	$1,000
Fish and Wildlife Service	85,500
Forest Service	50,000
Geological Survey	109,810
National Park Service	400
Weather Bureau	21,184
Total	267,894

The above amounts are subject to adjustment as required to keep the work of the other agencies in step with the program of the Bureau of Reclamation for general investigation made available by the Congress.

CONTRIBUTIONS BY LOCAL AGENCIES

Mr. JENSEN. On page BR–2, you say:

The request of $200,000 for fiscal year 1956 for this basin plus contributions in the amount of $425,000 will be utilized for planning activities—

and so forth. Just what do you mean by that? Who is making those contributions?

Mr. SPENCER. Local agencies.

Mr. JENSEN. Who?

Mr. SPENCER. Ventura County, for one. They are financing us to the extent of approximately $400,000 for completion of not only advanced planning, but plans and specifications for a project which is not yet authorized, but which they hope to get authorized. If it is not authorized, the Bureau will turn over to Ventura County a complete set of plans and specifications so that the county can go ahead and construct the project by other means.

Mr. JENSEN. So they are furnishing all of the money for the investigation of this project?

Mr. SPENCER. Yes, sir.

KLAMATH PROJECT, UPPER LOST RIVER DIVISION

Mr. EVINS. Mr. Spencer, what is contemplated on the Upper Lost River Division? As indicated on page BR–8, this is a new survey.

Mr. SPENCER. Upper Lost River is a part of the old Klamath project, one of the earliest projects built by the Bureau of Reclamation. The fringe areas and additional storage, power possibilities and other future developments are a possibility in the whole Klamath Basin. We are now trying to determine the feasibility of further development of Lost River to increase the irrigation water supply and also flood control for lands in the southern half of the project which, by the way, is in the State of California. It is a rather complex project because, in addition to flood control and the irrigation water supply, we have a wildfowl habitat, and the possibility of one at Clear Lake, to partially relieve the congestion or overuse of the present refuge in the Tule Lake Irrigation District.

Mr. EVINS. It appeared to me rather nebulous as to just what you are doing there. Is the development of major waterfowl habitats one of the principal functions of the Bureau of Reclamation?

Mr. SPENCER. No, sir. But in the Tule Lake Division of the Klamath project, we have in the heart of the project the Tule Lake wildfowl habitat. It is in the heart of the irrigation project, using the sumps which were constructed to take care of flood control. The Fish and Wildlife Service also use some acreage in the sumps for growing feed for wildfowl, ducks and geese. The Bureau would like very much to develop a plan which would relieve, or at least lessen the problem of the water users.

Mr. EVINS. You indicate some possible development of hydroelectric power in that area. To what extent do you anticipate development of hydroelectric power?

Mr. SPENCER. None at the present time.

Mr. EVINS. Is it contemplated in the plan?

Mr. SPENCER. In the overall plan, we have listed power developments—any possibilities of future power developments; but none of them are active at the present time.

Mr. EVINS. Is that merely an attractive way to get appropriations, to offer to the Appropriations Committee a plan to investigate hydroelectric power, but not to expend any money for it, but spend it for wildlife habitats?

Mr. SPENCER. Possibly I erred in making the statement that we are anticipating pushing that at this time. It is a multiple-purpose investigation and I included all possibilities. Whether we will come up with a recommendation for power upon completion, I cannot tell you at this time.

Mr. JENSEN. I might say in answer to your question, Mr. Chairman, that the Flood Control Act under which we operate and under which the Bureau of Reclamation operates is based on flood control and irrigation. Hydroelectric power is incidental to flood control and irrigation. Naturally, the Bureau of Reclamation must abide by the law in all of their doings and I think they have done it very well over the years.

Mr. EVINS. I think the Bureau of Reclamation is a very important agency of the Government and has been doing a superior job. I agree with my colleague, but I still point out in their justifications they have mentioned "and to generate hydroelectric power." They mentioned that as one of the reasons for this request. Yet we see no work is being done and one of the major portions of the work they are doing is the development of a major waterfowl habitat. I am asking if that, under the law, is one of the functions of the Bureau of Reclamation.

Mr. CROSTHWAIT. I would like to point out that that particular investigation is designed to relieve one of our irrigation districts from problems they are now encountering because of a present exisitng waterfowl habitat. It is one of the real problems of the irrigators in that area and this investigation was designed or intended to see if

we could develop some alternative that would relieve this group of irrigators in this area from problems they are now plagued with from an irrigation standpoint, because of an existing fish and wildlife habitat. The Bureau is not in the business primarily of building fish habitats or waterfowl habitats; that is a problem of the Fish and Wildlife Service.

But we do have to work with the Fish and Wildlife Service whenever we build a project that impinges in any way on that sort of a natural resource.

Mr. EVINS. That is one of the incidentals or byproducts of your general authority under the law?

Mr. CROSTHWAIT. That is correct. Quite frequently if we are building a reservoir and we have a problem of it interfering with a natural resource of the fish industry, we provide, as does the corps, for the handling of this fish in movement by those structures.

Mr. EVINS. My only observation was you mentioned this as a wildlife and waterfowl habitat and you also mentioned generating hydroelectric power, which is also incidental, but the emphasis is on the water fowl habitat rather than power, both of which are auxiliary to your function.

(Discussion off the record.)

Mr. JENSEN. Do you have any drainage problems in this area?

Mr. SPENCER. Yes, sir; we do, and these sumps which are used by the birds are part of the drainage problem solution, in that we do pump water into the sumps to dry up the lands on the outside of the dikes; forming the sumps. The water is then pumped into lower Klamath Lake; in fact the water runs from one river, the Lost River or the Klamath, on to irrigated lands and then from the irrigated lands into the sumps and from the sumps it is pumped into lower Klamath Lake and then back into the Klamath River. It is a rather complex problem.

Mr. JENSEN. So your sumps are, in a sense, manmade because of the necessity to pump water off of your agricultural land into the sumps, because it is the only place you have to put the water that is causing you trouble on the agriculatural land. Is that right?

Mr. SPENCER. That is correct. I might also call attention to the fact that a great deal of the farmland is an old lake bed. We have reclaimed thousands of acres of land by making those dikes to form sumps which are now used as a bird refuge.

Mr. JENSEN. So it just happens that you have this bird refuge because of the fact it was necessary to use that area as a storage for surplus water. That is to some degree true; is it not?

Mr. SPENCER. That is true. And also the project is on a major flyway from Canada to the South. The birds come through here and here is water, so they stop over.

Mr. JENSEN. Which the sportsmen do not hate too bad, I suppose.

Mr. SPENCER. No, sir.

Construction and Rehabilitation, Bureau of Reclamation

SANTA MARIA PROJECT

Santa Maria Project, California

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$16,689,751
Total obligations to June 30, 1954		----------
Total obligations, fiscal year 1955		----------
Allotment, fiscal year 1956	$1,000,000	
Total obligations, fiscal year 1956		1,000,000
Balance to complete		15,689,751

WORK PROPOSED, FISCAL YEAR 1956

Vaquero Dam and Reservoir ($950,000): The program provides for the completion of designs and specifications for the dam structure and for the award of the construction contract for the dam in April, 1956. Specifications will be issued for the relocation of roads and utilities. Land will be acquired for the dam site and highway. Temporary field offices and other construction facilities will be completed.

Mr. Evins. Under "Construction, Bureau of Reclamation," for the Santa Maria project, the estimated total obligations are $16,689,751; the budget request for fiscal year 1956 is $1 million.

This is a new project and we would like you to give us a general statement as to what you propose to do in this connection.

Mr. Spencer. The Santa Maria project is a new start proposed by the President for a project estimated to cost $16,982,000. The project lies in the Santa Maria Basin, about 60 miles northwest of the city of Santa Barbara. The project is planned for a dual purpose: (1) to provide adequate recharge of the now critically depleted ground-water reservoir underlying the Santa Maria Valley; and (2) to eliminate the threat of extensive flood damage to cities, industries, and agriculture of the valley. The project consists of an earth-filled dam on the Cuyama River and a reservoir of 214,000 acre-feet, of which 89,000 acre-feet are allocated for flood control. The plan of the project is essentially to release the stored water into the riverbed at a rate equal to or less than the percolation capacity of the Santa Maria River Channel. An average annual yield, sufficient to overcome the present overdraft and to irrigate an additional 3,000 acres can thus be obtained. The project is unique in that all beld-over storage would be maintained in ground-water reservoirs and no surface water deliveries to irrigation is contemplated.

A repayment contract is scheduled for execution by July 1955. The contract will be executed with the Santa Barbara County Water Agency. In turn the agency must negotiate a member-unit contract with the Santa Maria Water Conservancy District.

The program for fiscal year 1956 provides for the completion of design data and specifications for the dam structure and for the award of the construction contract for the dam in April 1956. Dur-

ing the year, specifications will be issued for the relocation of roads and utilities. Land will be acquired for the dam site and highway. Field offices and other temporary construction facilities will also be completed.

Mr. EVINS. Thank you, Mr. Spencer.

What is the relationship between this project and the authorized Corps of Engineers' project in the same area?

Mr. SPENCER. It supplements the corps' authorized project, since the corps will construct the system of flood-control levees—either will or have—it is not in competition.

Colonel BERRIGAN. The flood-control reservoir and the levees were authorized by the last Congress as an integrated plan. We have given full consideration to the holding back of the waters, and we have designed levees based on the construction of the reservoir.

Mr. EVINS. It is an underground storage system, as I understand?

Colonel BERRIGAN. It is a reservoir and then releasing the water like we do into all of southern California, principally to get water out of the reservoir into the ground-water table, because they usually get it from wells. But we also have levees to protect as necessary from floods the reservoir cannot control fully.

Mr. EVINS. There is cooperation on this project between the Bureau of Reclamation and the Corps of Engineers and you think this is a firm figure?

Colonel BERRIGAN. We do not change our figures at exactly the same time of year, but essentially we are in full agreement.

Mr. EVINS. You have here $16 million and you won't come in here in a few years and say $25 million?

Colonel BERRIGAN. Our part of the work is estimated to cost $10,300,000.

Mr. EVINS. What is the status of the repayment contracts for this project?

Mr. SPENCER. We expect the master contract to be signed by July of 1955. We are essentially in agreement on it right now with the attorneys.

Mr. EVINS. How sure are you of that?

Mr. SPENCER. We are in agreement on the terms of the contract and the schedules. So far as I know, there is no opposition to this contract from local groups and they have been very active and have pushed it. We have agreed on the terms of the contract. There are certain legal steps which we have to take which is the only reason the contract has not been signed.

Mr. EVINS. The proper time to have your repayment contracts is before the project gets underway. After a substantial amount of money is expended and the project completed, then you have difficulty in negotiating the repayment contract.

Mr. SPENCER. As I recall the authorization, we are not permitted to start construction until the repayment contract is signed.

Mr. EVINS. You have had some experiences in the past where you have had difficulty getting contracts signed after construction is underway.

Mr. SPENCER. That is correct.

Mr. JENSEN. Mr. Chairman, I think this is a pretty good time to put the Bureau on notice that this committee will absolutely refuse to make appropriations for any project of this nature where a firm contract between the water users and the Bureau has not been completed. I think this is a good time to do it.

(Discussion off the record.)

Mr. JENSEN. Do you agree with me, Mr. Chairman, that this committee should at this time put the Bureau on notice that we will not favor an appropriation for any project of this nature until a firm contract has been signed between the water users and the Bureau?

Mr. EVINS. I certainly agree on the timeliness of it and the proper time to secure such a contract is prior to the expenditure of money on construction.

Do you anticipate any difficulty in securing the necessary land and relocation agreements in the new project?

Mr. SPENCER. My answer to that would be no more than the usual difficulty. We always have difficulty where you are buying a reservoir area, moving roads, utilities, and other facilities.

Mr. EVINS. The Corps of Engineers is in full agreement with the need, necessity, importance, and advisability of this project?

Colonel BERRIGAN. Yes, sir.

OPERATION AND MAINTENANCE, BUREAU OF RECLAMATION

Mr. EVINS. On Operation and Maintenance we will insert in the record pages BR–498, BR–499, BR–500, and BR–501.

(The matter above referred to is as follows:)

CACHUMA PROJECT, CALIFORNIA

PROJECT DATA

Authorization

The Cachuma project was authorized pursuant to a finding of feasibility, in accordance with Federal Reclamation Laws, which was submitted to the Congress on March 24, 1948.

Location

The project is located in southern Santa Barbara County. The service area in on the narrow coastal plain between the Santa Ynez Mountains and the Pacific Ocean.

Description

The project provides additional water to maintain existing irrigation, suburban and urban developments, and to permit normal future expansion for the city of Santa Barbara and the Goleta, Montecito, Summerland, and Carpinteria County Water Districts. Facilities include Cachuma Dam and Reservoir; Tecolote Tunnel; South Coast Conduit; Glen Anne, Lauro, Ortego, and Carpinteria Regulating Reservoirs; and distribution systems for Goleta, Carpinteria, and Summerland County Water Districts. The project is designed to furnish a water supply for 26,900 acres and an ultimate minimum of 10,300 acre-feet of water per year to the city of Santa Barbara.

Status

Construction began on February 7, 1950. As of June 30, 1955, the project is scheduled to be approximately 98 percent complete. Construction work on all features items of the program, excepting Tecolote Tunnel and Goleta, Carpinteria, and Summerland lateral systems was esstenially completed prior to or during fiscal year 1954. All laterals are scheduled to be completed during fiscal year 1955. Tecolote Tunnel is scheduled for completion during the first half of fiscal year 1956.

Starting July 31, 1951, water encountered in excavating Tecolote Tunnel, amounting to 3 million to 4 million gallons per day, was delivered through project facilities, to the extent completed, as requested and available.

The total estimated construction cost of the Cachuma project has been increased from $41,500,000 to $43,816,000 (anticipated total obligations $43,574,874). This increase is the net result of very unfavorable and unforeseen conditions encountered in excavating Tecolote Tunnel.

Repayment

A 40-year contract under section 9 (e) and 9 (c) (2) of the Reclamation Project Act of 1939 has been executed with the Santa Barbara County Water Agency under which the costs of works except the distribution systems will be returned to the United States. A subsequent water service contract for 16 years will be required to return the total cost of water supply works. Contracts for the recovery of costs of construction of the distribution systems for the Goleta, Carpinteria, and Summerland Water Districts under section 9 (d) of the Reclamation Project Act of 1939 have been executed.

Status of repayment contract negotiations.—Water service contract executed with Santa Barbara County Water Agency. Distribution system repayment contracts executed with Goleta, Summerland, and Carpinteria Water Districts.

$4,760,000 cost of irrigation distribution systems will be repaid in full by irrigators and the municipal water users in 40 years following 4 to 10-year development periods of particular districts.

$39,253,000 cost of water supply works used jointly by municipalities and irrigators will be returned in full by means of water service payments made by the Santa Barbara County Water Agency which has entered into subcontracts with the city of Santa Barbara, and Goleta, Carpinteria, Montecito, Summerland County Water Districts and the Santa Ynez Valley Water Conservation District.

Cost per acre

Federal Investment per acre	$827.00
To be repaid from water users	827.00
Annual water user charges (Per acre-foot):	
Distribution system	4.80
Operation and maintenance	3.75
Water service	25.00
Total	33.55

Gross crop income per acre resulting from project irrigation, $780. (Estimated for mature stage of development and includes use of nonproject water.)

History of project development

Initial date—planning, 1941; advanced planning, 1949; construction, 1950.

Date of functional completion of construction, fiscal year 1956.

Fiscal year and amount of initial allotment of appropriations for construction, fiscal year 1949, $1 million.

Construction costs

Original estimated cost	$32,310,000
Expected repayment of costs:	
Irrigation	20,164,000
Municipal	12,146,000
Present estimated construction cost	43,816,000
Continuing water-rights studies	197,000
Total estimated project cost	44,013,000
Expected repayment of costs:	
Irrigation	22,591,873
Municipal	21,421,127

Schedule of development

(In acres)

	Through fiscal year 1953	Fiscal year 1954	Fiscal year 1955	Fiscal year 1956
Irrigation system:				
Full				500
Supplemental				26,400
Total				26,900

Cachuma Project, California

ESTIMATE OF OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	
Total obligations, fiscal year 1955	
Allotment, fiscal year 1956	$16,000
Total obligations, 1956	16,000

Work proposed, fiscal year 1956

Multipurpose facilities	Program, 1956	Increase or decrease from 1955
Storage system—for the initial year of operation and maintenance of the dam and outlet works	$16,000	+$16,000
Total obligations	16,000	+16,000

NOTE.—It is currently planned that the dam and outlet works are to be operated by the Bureau of Reclamation while the other features of the project will be operated by a board of control representing the water districts served. The plan that the Bureau of Reclamation operate the storage works for at least an initial period after construction is in line with Bureau practice. Downstream commitments are to be regulated and recording instruments in and on the dam are to be read and reported.

Mr. EVINS. On the Cachuma project, you indicate that total repayment will be required for the item of water supply works.

What is the status of negotiations on this contract and why has it been delayed in execution?

Mr. SPENCER. We have contracts for all of the distribution systems for Goleta, Carpinteria, and Summerland County Water Districts under section 9 (d) of the Reclamation Act of 1939, and they have been executed.

Mr. EVINS. The justifications say, "A subsequent water service contract for 16 years will be required to return the total cost of water supply works."

Mr. SPENCER. This is a 9 (e) contract. We do have a 9 (e) contract in existence for repayment for 40 years. Because of the increased cost of construction of some of the facilities, it will be necessary to extend it for another 16 years; but we do have a 40-year contract.

Mr. EVINS. You have executed at this time all of the contracts which the Bureau of Reclamation deems necessary or desirable at this stage of the development?

Mr. SPENCER. That is correct.

Mr. EVINS. When do you anticipate the 16-year contract you mentioned will be completed?

Mr. SPENCER. At the end of the 40-year period. The 9 (e) contract is a service-type contract. The districts purchase water at so much per acre-foot per year. At the end of 40 years, if the project has not paid out, they can no longer get this water without executing a new contract. In other words, we sell that water just like a utility sells electricity or a city sells water.

Mr. EVINS. Is it not contemplated by law that the initial contract shall bring in sufficient revenues to reimburse the Government for the total payment of the entire cost?

Mr. SPENCER. That is correct. Yesterday we discussed the Tecolote Tunnel. We ran into unforeseen difficulties which increased the total overall cost. The existing contracts will not pay out in 40 years; but, if extended for another 16 years, will pay out.

Mr. EVINS. Will you have any difficulty at the end of the period where this project extends far into the future? Say the 40-year contract is open and you have not recovered sufficient monies, then do not you anticipate difficulty in renegotiating the contract?

Mr. SPENCER. We do not deliver water until the contracts are renegotiated. We do not have to renegotiate; we can shut off the water if they do not. In other words, they are buying water at so much per acre-foot and at the end of 40 years, even assuming the repayment is not completed at that particular time, they would still have to buy water in order to get the water.

Mr. CROSTHWAIT. This first contract was based on our initial estimate of cost and we ran into very difficult situations in going through this tunnel and it increased the actual cost of the project by a substantial amount. We do not anticipate at this time any difficulty in complete recovery of that additional cost, because of the need for the water in that area.

Mr. EVINS. You have only the contracts existing at this time that you think are feasible, desirable, and necessary?

Mr. CROSTHWAIT. Yes, sir.

Mr. EVINS. How long do you operate these storage facilities before turning them over to the local people?

Mr. SPENCER. No longer than necessary. We possibly will operate them for 10 years due to water right problem on the Cachuma Reservoir. It is necessary to turn a certain amount downstream to supply water for underground storage in an area not associated with this project. It is a plan of settlement of the water rights, in which there is a 10-year period of trial and error, unless there is some shorter period agreed upon due to the settling of the water rights problem. It is not a dispute, but agreeing permanently as to how much water is necessary to turn downstream in order not to interfere with the past underground storage, in the valley.

Mr. EVINS. You indicate it is currently planned that the dam and outlet works are to be operated by the Bureau of Reclamation while the other features of the project will be operated by a board of control representing the water districts served. What are the auxiliary features or outlet works that the local people will operate?

Mr. SPENCER. Tecolote diversion tunnel through the mountain to the coastal area; the south coast conduit, the regulating reservoirs, and distribution systems.

Mr. EVINS. Why has not this same principle been applied in the Central Valley project? You are turning this over to a local board

of control. Why has not this same principle been employed by the Bureau of Reclamation in other instances?

Mr. SPENCER. You might compare Cachuma Reservoir to the main canal features and the storage works; which we are maintaining in the Central Valley project. All of the distribution systems for individual districts in the Central Valley project have been turned over as soon as the guarantee period is complete after construction. We have turned over a number of distribution systems to individual irrigation districts.

Mr. JENSEN. In the contract you made with the water users in addition to the original contract on the Cachuma project, did you extend the time of repayment of the whole project by virtue of the fact the water users were obliged to obligate themselves for several million dollars more?

Mr. SPENCER. Mr. Jensen, we did not officially or legally extend the time. We are operating under a 40-year section 9 (e) contract, which is as long as we are permitted to contract legally.

Mr. JENSEN. So they simply pay a greater rate per year.

Mr. SPENCER. That would be the only way it could be done if the increased costs were to be recovered over the 40-year contract period.

Mr. JENSEN. The original contract was for the amount of $35 million, of which the city of Santa Barbara was to pay, I think, 32 or 33 percent. We had quite a hassel on this project, because the water users will pay around $1,000 an acre. Our committee, before we appropriated the money, insisted that an election be held among the water users to determine whether or not they wanted to obligate themselves or wanted to have a lien, so to speak, of $1,000 an acre against their land. They finally held an election after we insisted on it, I think after 2 years, and the water users voted overwhelmingly to obligate themselves for this amount.

Of course they grow lemons and olives and those are high value crops. The salt water had been coming in and coming up to the roots of their trees and was killing a number of trees. It was a desperate situation and they were willing to obligate themselves for this amount.

When they were digging this tunnel through the mountain to bring water from the other side of the mountain, they had an explosion in the tunnel as I stated yesterday which necessitated a considerable amount of additional money to cope with that situation. Then the Bureau of Reclamation, of course, requested the water users to obligate themselves, and the city of Santa Barbara to obligate itself, for the greater amount than was originally estimated and which, of course, the original contract called for, which they did. You did not change the time that the project should be paid out; it is still 40 years. Is that right, Mr. Spencer?

Mr. SPENCER. We have not changed the contract figures.

Mr. JENSEN. You have not changed the contract figures?

Mr. SPENCER. As I stated, this is a water-service contract which calls for payments of $25 per acre-foot for water for agricultural purposes and $35 per acre-foot for municipal and industrial use. We could not get the water users to change those rates at this particular time—the rate of $25 per acre-foot for the farmers and $35 per acre-foot for the city of Santa Barbara.

Mr. CROSTHWAIT. It will take them another 16 years beyond the present contract period at the same rate of the present contract to

pay out the total cost of the project when completed unless more water is available than we have estimated, in which case the payout would take less than 16 years.

Mr. JENSEN. Would they be willing to pay more per year in order to pay this project out over the 40-year period which was originally planned? Has any attempt been made to determine whether they were willing to do that?

Mr. SPENCER. Yes, and we were not successful.

Mr. JENSEN. But they did sign a contract that they would obligate themselves for this additional amount of money which the project will cost?

Mr. SPENCER. They indicated they would sign.

Mr. JENSEN. You have a firm contract to that effect?

Mr. SPENCER. We have firm letters and telegrams, which I believe were introduced in the record at the 1955 fiscal year hearings.

Mr. JENSEN. That actually is not a contract. Those fellows who sent those wires may be dead in 50 years.

Mr. SPENCER. I am sure some of them will be.

Mr. JENSEN. I do not think that is very good business. I want to be entirely fair with the water users, and I might say the Interior Subcommittee on Appropriations has always leaned over backward to be fair with the irrigators. We have appropriated a great deal of money to irrigate land in the 17 Western States, but it appears to me that those water users should sign a firm contract and obligate themselves to pay this project out according to the first contract which they signed and, in line with that, have agreed to pay the full amount; that is, the city of Santa Barbara and the water users. I had understood that you had a contract with the water users to pay this difference which was caused by the effect of this explosion.

Mr. EVINS. The statement reemphasizes what I said earlier, that the time to execute the contract is initially before the money is expended on construction and not 16 years later.

Mr. JENSEN. In all fairness to those water users and to the taxpayers of America, I feel, Mr. Spencer, and I believe the committee feels as I do, that a contract on the Cochuma project for the additional cost of this project should be entered into between the water users and the Bureau of Reclamation at the earliest possible time. Do you agree with me, Mr. Chairman?

Mr. EVINS. If the present rates are fair and adequate it is possible that the present prevailing conditions will be found satisfactory. If they are not fair and adequate and sufficient to take care of congressional intent on the matter of cost, then the Bureau should take the necessary steps to fulfill the congressional intent and report to the committee its actions.

Mr. CROSTHWAIT. Our indications are that there is no question but what the beneficiaries of this project have indicated a complete willingness to return to the Federal Government the total cost of it. It is a question of the method of doing it, I think, and we will certainly be guided by your views as far as we can within the provisions of the law and the other conditions that might be involved.

KLAMATH PROJECT

Mr. EVINS. Mr. Reporter, insert in the record at this point pages BR–565 and 566 on the Klamath project.

(The matter referred to is as follows:)

KLAMATH PROJECT, OREGON-CALIFORNIA

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$596,732
Fiscal year 1955:		
Allotment	$380,426	
Funds advanced by water users	165,000	
Total obligations, fiscal year 1955		545,426
Fiscal year 1956:		
Allotment	$395,000	
Funds advanced by water users	57,000	
Total obligations, fiscal year 1956		452,000

Work proposed, fiscal year 1956

Multipurpose facilities	Program, fiscal year 1956	Increase or decrease from 1955
Storage system: For continuation of normal operation and maintenance of Clear Lake and Gerber Dams and Reservoirs	$11,000	
Replacements and improvements	1,000	
Total obligations, multipurpose facilities	12,000	

Irrigation facilities

	Program, fiscal year 1956	Increase or decrease from 1955
Storage system: For the continuation of normal operation and maintenance of Upper Klamath Lake Reservoir as a reserved works. This cost was previously included with the operation and maintenance charges of the distribution system of the main division	1,400	+700
Distribution system: For continuation of regular operation and maintenance of Tule Lake division and Modoc Unit No. 1. Decrease is due to the Klamath Irrigation District taking over operation and maintenance of the main division on Jan. 1, 1955	234,286	−64,001
Drainage system: For continuing normal operation and maintenance of the drainage pumping plants and canals and normal maintenance work on dikes around Tule Lake sump. Decrease in cost is due primarily to the Klamath Irrigation District taking over operation and maintenance activities of the main division on Jan. 1, 1955, with the exception of applicable reserved works	165,914	−16,635
Replacements and improvements: To continue major repairs on drainage-control structures in the Tule Lake division on the Modoc unit, together with the replacement of wornout passenger cars, trucks, and heavy equipment	38,400	−13,500
Total obligations, irrigation facilities	440,000	−93,436
Total obligations, all facilities	452,000	−93,436

Mr. EVINS. Unless there are further questions, the committee will stand adjourned.

WEDNESDAY, APRIL 20, 1955.

GREAT BASIN

WITNESSES

CORPS OF ENGINEERS

COL. WILLIAM WHIPPLE, EXECUTIVE FOR CIVIL WORKS, OFFICE OF THE CHIEF OF ENGINEERS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL
COL. W. F. POWERS, CHIEF, OPERATIONS DIVISION, CIVIL WORKS
B. JOSEPH TOFANI, CHIEF, PROGRAM BRANCH
HARRY COHEN, ASSISTANT CHIEF, PROGRAM BRANCH
C. M. CONWAY, PLANNING AND DEVELOPMENT DIVISION

DEPARTMENT OF INTERIOR

W. A. DEXHEIMER, COMMISSIONER OF RECLAMATION
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER OF RECLAMATION
E. O. LARSON, REGIONAL DIRECTOR, SALT LAKE CITY, UTAH
SIDNEY D. LARSON, DIRECTOR OF DIVISION OF BUDGET AND FINANCE, OFFICE OF THE SECRETARY OF THE INTERIOR

Mr. EVINS. The subcommittee will consider this morning the Great Basin.

In connection with this basin, we will insert certain summary tables.

(The matter above referred to is as follows:)

Great Basin

Appropriation	Corps of Engineers	Interior-Reclamation
General investigations	$40,000	$347,000
Advance engineering and design	5,000	
Construction		10,895,000
Operation and maintenance		
Total	45,000	11,242,000

BUREAU OF RECLAMATION, CONSTRUCTION AND REHABILITATION—GREAT BASIN

Actual unobligated balances, June 30, 1954, and Mar. 31, 1955, and estimated June 30, 1955

Project	Actual unobligated balance, June 30, 1954	Actual unobligated balance, Mar. 31, 1955	Estimated unobligated balance, June 30, 1955; field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Weber Basin, Utah	$964	$1,842,564	$400,000	$100,000	$500,000
Drainage and minor construction	117,472	45,605		25,500	25,500
Rehabilitation and betterment		112,875	110,200		110,200
Total, Great Basin	118,436	2,001,044	510,200	125,500	635,700

Corps of Engineers: No funds available.

Mr. EVINS. I assume you gentlemen would like to make a general statement on the problems with which you are confronted in the whole Great Basin.

Mr. DEXHEIMER. Yes, sir. I have a statement prepared jointly by the Bureau of Reclamation and the Corps of Engineers.

Mr. EVINS. You may proceed.

GENERAL STATEMENT

Mr. DEXHEIMER. The Great Basin, comprising western Utah, most of Nevada, and an eastern and south-central piece of California, is unique in having no drainage outlet to the ocean. The east or Utah portion, known as the Bonneville Basin, is an ancient lake bed with its remnants now the Great Salt Lake. The west or Lahontan Basin runs from the Oregon border through Nevada, to within 80 miles of Mexico and includes California's Death Valley. Together they amount to nearly 200,000 square miles of mostly desert or semidesert land. Much of this area of ancient lakes is highly fertile, but without sufficient moisture to support vegetation. For many years it was considered a worthless area of no use to man. It has sharp rugged mountain ranges, with the Sierras on the west and the Wasatch to the northeast. The streams are mostly small, often dry for periods of the year, and terminate in small lakes. The major streams are the Truckee, Carson, Walker, and Owens Rivers, draining the eastern slopes of the Sierra Nevada; the Humboldt River in northern Nevada, and the Sevier, Jordan, Weber and Bear Rivers in Utah. Included is picturesque Lake Tahoe and Walker Lake, Bear Lake on the north, and many rugged canyons and scenic attractions. Elevations range from below sea level in Death Valley to mountain peaks over 14,000 feet. However, most of the plateau areas in Nevada and Utah exceed 4,000 feet and the Mojave Desert area in California is over 2,000 feet. The climate in the basin is arid, except in the high mountain areas. Winters are cold, and summers are warm and generally short, depending on elevation. Agriculture is generally impossible without irrigation. There is not enough water for development of but a fraction of the good land without importation from some outside source. Minerals and mining are the chief industry in most sections, with agriculture in the high plateau areas of Utah. Population of the basin is about 600,000, about half of which is in the Salt Lake area. The problems of this Great Basin cannot be entirely solved, and a maximum use of the limited water supply is essential. Yet flood protection is important in certain sections and the impoundment of every bit of flood flow for beneficial use is desired.

NAVIGATION

As to be expected, there is no commercial navigation existing or proposed for the basin, and this activity is limited to small pleasure craft on the various lakes and reservoirs. A need exists for recreational small boat harbors on Great Salt Lake.

FLOOD CONTROL

Each of the stream basins in the Great Basin is more or less independent, and the flood problems are therefore separable to a high degree. Accordingly, the solution of the problems has been handled by treating each basin separately. Total basin coordination is meaningless and unnecessary. Some coordination is needed on Truckee,

Carson, and Walker Rivers, as there is opportunity to combine power with flood control on these streams, and such power would serve a common market in the area. The corps' authorized program includes channel improvement on the Truckee River, Nev.; three reservoirs and channel and drainage improvements on the Humboldt River, Nev.; channel improvements on the Sevier River at Redmond, Utah; on the Jordan River at Salt Lake City, Utah; on the Spanish Fork River, Utah; and on the Little Valley Wash near Magna, Utah. Six authorized projects are involved. The authorized projects would not by any means solve all of the flood problems of the Great Basin, but would provide protection in most of the areas in which such protection is economically feasible at the present time. Authorized investigations may find that flood protection is feasible in additional areas. There are now 11 such authorized flood-control investigations, four of which are being actively prosecuted at the present time.

The only completed project is about 14 miles of channel improvement on Sevier River at Redmond, Utah. Uncompleted work comprises 5 projects including 3 multiple-purpose (flood control and irrigation) reservoirs, 25 miles of channel improvement, and 40 miles of main drainage canals. No flood-control projects are under construction at the present time. No new starts are proposed in fiscal year 1956. However, the Weber Basin project now under construction by the Bureau has multiple-purpose structures, including flood control.

IRRIGATION

Modern irrigation development in the Great Basin began over 100 years ago with the Mormon settlement around Great Salt Lake. Developments have been fairly extensive in the Utah area where the largest water supplies exist. The Bureau of Reclamation has constructed 11 projects in the basin including the recently completed Provo River project which also supplies municipal and industrial water to Salt Lake City. The Weber Basin project is now the only irrigation project underway. It will provide water for 50,500 acres of new land, supplemental water for 24,400 acres and about 40,000 acre-feet for municipal and industrial use in the Ogden area. There are no new starts proposed for fiscal year 1956. Investigations and planning funds are badly needed to develop irrigation supplies, principally for the Washoe project in California and Nevada, the central Utah project and the Bear River waters now wasting into Great Salt Lake. The entire central Utah future is dependent on additional water supplies, and the central Utah project will partially meet this need, if and when developed. It depends on the importation of water from the Colorado River.

POWER

The possibilities of hydroelectric power are extremely limited, except for small plants. In the Lahontan Basin, most of the power development is in Owens Valley and goes west outside the basin. The Sierra Pacific Power Co. has plants on the Truckee River. Private powerplants on the Bear River appropriate considerable waters and some readjustment would be desirable for domestic use and for irrigation. Much of the basin power is imported. Abundant cheap power would be a great impetus to the development of the basin. The first powerplant constructed by the Bureau of Reclama-

tion (1908) is the Spanish Fork plant in Utah, and the only federally built plant in the Great Basin. Two new plants, Gateway and Wanship, are features of the Weber Basin project. This project is now under construction although the powerplants are not scheduled to start until fiscal year 1957. One other plant is authorized, Deer Creek on the Provo River, which is not yet proposed for construction. The main additional power possibilities are in connection with the Washoe and central Utah projects for which planning funds are needed. It is possible that power developments will be found feasible by the Corps' investigations authorized on Truckee, Carson, and Walker Rivers in California and Nevada.

Planning and construction in the Great Basin is proceeding on a multipurpose basis so as to best combine irrigation with flood control and power benefits. A major drainage improvement in the Lovelock area in Nevada is included in the authorized project of the Corps of Engineers for Humboldt River. Drainage problems also enter into some of the corps' authorized investigations.

Mr. EVINS. Thank you, Mr. Dexheimer, for your statement.

NEEDED READJUSTMENTS IN USE OF WATER RESOURCES

I noted under the heading "Power" that much of the power is being imported, and you state there is great need for power in that area. I know from my own limited visits in the West that two things which impressed me most as being needed are water and power for the development of that great section of the country. You make the statement—

abundant cheap power would be a great impetus to the development of the basin—

and say

The Sierra Pacific Power Co. has plants on the Truckee River—

and that—

private power plants on the Bear River appropriate considerable waters and some readjustment would be desirable for domestic use and for irrigation.

That intrigued me a little bit. Is private power using water for development of power which they are selling to the people of the area, to the extent that the water is not being used for irrigation? What is the situation there? You state there needs to be some readjustment.

Mr. DEXHEIMER. That is somewhat typical of other private developments throughout the arid parts of the West where the power has been developed for some years and, of course, they have a right to the use of those waters under State laws and by Federal Power Commission license. Where water is so scarce, we think some arrangement should and can properly be made to utilize that water for irrigation or domestic and industrial uses, even though it might mean curtailing the power output.

Mr. EVINS. After the power is generated, is that water used for irrigation at this time? I assume so.

Mr. E. O. LARSON. There are five small plants on the Truckee River that use the stream to develop power the year around. The water is used for irrigation during the summer months and some of it during the wintertime is diverted into another watershed, the Carson River system. However, there is water going to waste down the river into Pyramid Lake and practically all of that water is now covered by

proposed powerplants for the development of what is called the Washoe project. That will be covered by further investigations.

Mr. EVINS. Mr. Dexheimer's statement indicates that some readjustment would be desirable. I wonder how that would be effected?

Mr. E. O. LARSON. That is covered in the justifications for the Washoe project, Mr. Chairman.

Mr. EVINS. There has only been one powerplant built by the Bureau of Reclamation, and that is in 1908, and you state—

Two new plants, Gateway and Wanship, are being proposed in this budget.

Mr. DEXHEIMER. Yes, sir; they are included in our overall request for funds for the Weber Basin project. However, they would not actually be constructed until fiscal 1957.

Mr. EVINS. Why would it not be possible, in view of the apparent water and power shortage in this area to let that work go forward and get them under construction?

Mr. DEXHEIMER. We have just gotten a good start on the Weber Basin project and have to build storage reservoirs and the other works before these powerplants could properly come into operation.

Mr. EVINS. The dams are under construction?

Mr. DEXHEIMER. The dams are under construction and the necessary canals.

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

Mr. EVINS. You have three projects under general investigation, the Mojave River, the Silvies River, and the Jordan River, totaling $40,000. We will insert page 1 of the justification in the record at this point.

GREAT BASIN—JUSTIFICATION OF ESTIMATE

GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. Examination and surveys

(*a*) *Navigational studies.*—None.

(*b*) *Flood-control studies.*—The amount of $40,000 is requested for continuation of work on 3 studies in Great Basin during fiscal year 1956.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
California: Mojave River	$133,200	$111,600	$10,000	$11,600
Oregon: Silvies River	89,300	62,800	15,000	11,500
Utah: Jordan River (interim)	75,000	27,900	15,000	32,100
Total	297,500	202,300	40,000	55,200
Grand total, examination and surveys	297,500	202,300	40,000	55,200

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. We will insert the usual tabulation on "Advance engineering and design" for which you are requesting $5,000 for one project in Salt Lake City.

GREAT BASIN—JUSTIFICATION OF ESTIMATE

ADVANCE ENGINEERING AND DESIGN

Funds in the amount of $5,000 will be applied to "Advance engineering and design" on one flood-control project in the Great Basin, the total estimated cost of which is $1,170,000.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects—None.				
Flood-control projects:				
Utah: Salt Lake City	$1,170,000	$42,000	$5,000	$1,123,000
(Project will not be ready for construction with funds requested in fiscal year 1956.)				
Multiple-purpose projects including power—None.				
Reexamination of projects in "Deferred for restudy" category—None.				
Grand total, advance engineering and design	1,170,000	42,000	5,000	1,123,000

Mr. EVINS. Colonel, will you give the committee a brief history of the local interests' action on this project?

Colonel STARBIRD. Yes, sir. In 1947 the city indicated its desire to go forward with the plan. This was immediately after authorization. There was a slight, but reasonable, modification of the original authorized plan as developed in our definite design study. The results of the study, transmitted to the city in 1950, called for substantial local support. The city was unable to meet the requirements set forth at that time and finally in 1952 they informed us they could not accept the plan.

A sizable flood occurred also in 1952 and they did quite a bit of work after that flood. In February 1954, they asked us to reinstitute our studies and indicated again their interest in going ahead with the plan, asking that the study be brought up to date. The amount of $5,000 is for that purpose.

Mr. EVINS. In the planning report there is a statement which I would like to read into the record.

By resolution dated December 17, 1952, the board of commissioners rejected the plan as unacceptable at that time. The rejection was attributable to the inability of various local interests to reach agreement among themselves and to make the necessary arrangements for fulfilling the required local responsibilities. However, by letter of February 26, 1954, the board, under new chairmanship, requested that renewed efforts be made to formulate a plan of improvement which would be mutually satisfactory to local interests and the Federal Government.

It was following that that you have requested these funds and indicate that the situation is now satisfactory?

Colonel STARBIRD. It looks like they will go ahead now.

Mr. EVINS. Will you, in your opinion, be able to develop an economical project?

Colonel STARBIRD. Yes, sir. We estimate the benefit-cost ratio will be about 1.2 to 1 for the project.

Mr. HAND. This project you are now discussing is for flood control for Salt Lake City?

Colonel STARBIRD. It is, sir.

Mr. HAND. Does it go beyond that in scope at all?

Colonel STARBIRD. No, sir; it is for Salt Lake City and Salt Lake County urban area.

Mr. HAND. It is a local protection project?

Colonel STARBIRD. Yes, sir; it is a local protection project.

Mr. HAND. I see from the justifications that the total estimated cost of the project will be $1,170,000.

Colonel STARBIRD. That is correct, sir.

Mr. HAND. How much money has been spent on planning heretofore?

Colonel STARBIRD. A total of $42,000 has been spent to date.

POWER NEEDS IN THE GREAT BASIN AREA

Mr. HAND. Now I would like to address a couple of questions to the Commissioner. Mr. Commissioner, would you like to comment on the overall present need for power in this area?

Mr. DEXHEIMER. Yes, sir. The 10 private power companies covering the general area of Utah, Wyoming, Colorado, New Mexico, and northern Arizona, before the Subcommittee on Interior and Insular Affairs, made the statement that they needed in that area an addition of 150,000 kilowatts per year for the growth in that area, and that included the Utah Power & Light Co. which operates largely in Utah. They did that in connection with the hearings on the Upper Colorado and the prospects of developing additional hydroelectric power there.

The Federal Power Commission makes studies on the load-growth requirements in an area and their studies fairly well bear that out—that the normal load growth would be in that magnitude. However, as you probably realize, very recently there has been considerable development in that general area of additional mining work in connection with oil shales, uranium and high-priced copper; so that the industrial uses for power are growing, perhaps even more rapidly than the anticipated load-growth studies would indicate.

The Federal Government, of course, has done quite a bit of work in establishing airbases, steel plants, and other things in that general area. The growth is phenomenal wherever you can get water and reasonably priced hydroelectric power, and there has been a considerable growth in all of the industrial fields as fast as those two things are available.

So I think there is great need and probably the need will be much greater with the addition of these new mining ventures. Mining has been the basic economy of that general area for most of the time up to now.

Mr. HAND. What does the Government have there now in the way of power?

Mr. DEXHEIMER. Actually this one small powerplant which is largely to serve irrigation needs is the only one the Federal Government has there now.

Mr. HAND. The one constructed back in 1908?

Mr. DEXHEIMER. Yes.

Mr. HAND. What are you planning now in the way of construction for power?

Mr. DEXHEIMER. The only others are two small plants in connection with the Weber Basin project. They will be started, we hope, if we get the appropriations, in fiscal year 1957. But a large part of that power, again, is needed in connection with irrigation development for

pumping more water and lifting water to reach certain areas for irrigation and some municipal and industrial water in the area around Ogden, Utah.

Mr. HAND. What will those two small plants do, percentagewise, to relieve the power shortage in that area?

Mr. DEXHEIMER. Practically nothing; because most of their output is to go into pumping for irrigation needs.

Mr. HAND. Referring to this whole basin, I believe you said they had an area of some 200,000 square miles.

Mr. DEXHEIMER. Yes, sir.

Mr. HAND. And a population of what?

Mr. DEXHEIMER. 600,000, approximately.

FEASIBILITY OF RECLAIMING LAND IN THE GREAT BASIN

Mr. HAND. What comment do you have to make on the overall economic feasibility of attempting to reclaim and make fertile this area by irrigation processes?

Mr. DEXHEIMER. To the extent water can be made available, we would develop probably a very small fraction of the area into irrigation, because there simply would not be enough water. But those small areas are very vital, particularly in stock production. There are tremendous areas of grazing both in Government forest lands and private lands, although in that general area I assume the Government controls probably 60 to 75 percent of the total area, either in Indian reservations, forest reservations, national parks or other things. And to have a small irrigated area where feed can be raised for this livestock to carry them over the winter when they are not grazing on the land is a very vital thing for stock raising. That would generally be the use of the irrigated land. The other part of the irrigated lands, of course, would supply such things as vegetables, fruits, and some small grains for feed which generally would add to the supplies consumed in those areas. Very little of it would be shipped to other areas.

Mr. HAND. In your opinion does the national interest require at present an increase in agricultural production in this country?

Mr. DEXHEIMER. Yes, sir; in those lines I think it does. By this development we would actually cut down on the growing of crops that are now in surplus, such as wheat. You can raise wheat in dryland farming, but practically none is raised on irrigated land, because it is not a valuable enough crop to support the water charges on irrigation in the West, and the growth in population in the West has been a great deal more percentagewise than throughout the rest of the country.

Mr. HAND. In this particular area we are discussing?

Mr. DEXHEIMER. Yes. A large part of this particular area, although not so much as in surrounding basins, but because of the climate and the opportunities for mining, I think, it will probably grow much faster. Any of these works, of course, take some 15 or 20 years before they are really developed, from the time we plan them until the benefits are available to an area.

So we feel that every bit of water out in that area must eventually be developed. It is a question of economics as to when you develop it; that is all. And with our increasing population and the growth particularly in the West, by the time we get any of these things built

they will be more than needed to support the area's requirement for food. And as I pointed out, practically none of the irrigated lands in this general area would go into crops which are now in surplus or conceivably could be in surplus supply.

Mr. HAND. Do you see now in the foreseeable future any shortage of foodstuffs in this country which would require the development of this desert area to produce it?

Mr. DEXHEIMER. Yes, sir; I do. And I think, of course, there is a great deal of difference of opinion as to where you should develop additional foodstuffs and how you should do it; but if you combine the development opportunities and the population increase in the West with the food demands of the increasing population and the transportation requirements that would have to be met if you produce the food someplace else, then I think it is very essential to the development of the overall economy of the country that the western part be developed in this manner.

You understand, of course, that the Bureau of Reclamation has developed and supplied water to only about 7 million acres of land and there are some 27 million developed in the general western area that are irrigated; so most of it has been done by private enterprise. And even some of the 7 million we have developed has been only supplemental water for existing private developments or, in some cases, reclamation developments that were made 30 or 40 years ago, where the water supply, because of municipal and other uses, has diminished to where they need additional water.

Mr. HAND. Thank you.

Mr. EVINS. Mr. Commissioner, in line with Mr. Hand's questions, it was my initial observation as to whether or not you are really solving the problem and are we attacking the problem by going full speed ahead. You have not built any power since 1908. That is 47 years ago. Are we going at this thing piecemeal, or are we going full speed ahead to solve the problem? We now need power; we now need water and there is some indication of water being wasted. I would like to see the Bureau and the Corps of Engineers submit plans for saving water and utilizing it for irrigation purposes and at the same time developing the power that is needed.

Mr. DEXHEIMER. In the instance you mention of possible water that may be going to waste, we have a request in this fiscal year's budget for funds to carry on that investigation. We hope we will have a feasible means for supplying the answers to that particular question. We are, of course, investigating all possibilites of the use of water for domestic, industrial, and agricultural uses in that basin and, as we mention, the power potential from hydroelectric plants is very small.

The private power companies have built largely steam generating plants to take care of the power requirements and we have before the Interior and Insular Affairs Committee of the House a proposal on the upper Colorado which would essentially be a large water and hydroelectric power development for that whole general area, including not only this basin but some others. So I think we are trying to present these plans. We do have a little difficulty in getting approval.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Mr. EVINS. You are requesting $347,000 for general investigations. We will insert the usual pages in the record at this point.

General Investigations

Great Basin

Allocation of appropriation, fiscal year 1955		$325,008
Prior year balance available		8,000
Contributions		3,470
Total obligations, fiscal year 1955		336,478
Estimated allocation of appropriation, fiscal year 1956	$347,000	
Total obligations, fiscal year 1956		347,000

Description

The appropriation of general investigation funds for the Great Basin provides for the planning of the basin and project developments of the Bureau of Reclamation for the utilization of the water resources of that basin.

The program of general investigations may include:

(1) Engineering and economic investigations to determine the feasibility of potential reclamation projects. These investigations may consist of reconnaissance surveys to establish with a minimum of time and funds, the justification for further detailed study; basin surveys to establish basinwide plans, or detailed studies of the feasibility of specific projects.

(2) Advance planning to prepare newly authorized projects for construction.

(3) Investigations of existing projects necessary for rehabilitation, financial adjustments or water conservation.

In the past, the general investigations program included, where appropriate, small allowances for necessary transfers of funds or reimbursements to other agencies, such as the Geological Survey, Fish and Wildlife Service, National Park Service, Weather Bureau, Coast and Geodetic Survey, Department of Agriculture, etc., for work over and above their regular programs which those agencies perform in connection with the Bureau's investigations of specific potential projects and which these other agencies are better equipped to do. The request for fiscal year 1956 includes funds for this same purpose and, in addition, it includes for the first time a request for funds for transfer to the Fish and Wildlife Service for basinwide studies of that agency in connection with basin investigations by the Bureau of Reclamation where such investigations are underway.

Work underway and proposed

The general investigation program for the current fiscal year in the Great Basin is $336,478 which is financed with appropriated funds in the amount of $33,008 and contributions of $3,470. With these funds, planning activities will be underway on a total of six investigations. Of this total, 5 will be a continuation of studies underway at the beginning of the fiscal year and 1 will be an investigation being resumed. One of these investigations will be completed.

The request of $347,000 for fiscal year 1956 for this basin will be utilized for planning activities on a total of five investigations continued from the prior year. The activity breakdown of work proposed in fiscal year 1956 compared with the program for fiscal year 1955 is shown in the following "Summary of activities," and the details of the program proposed is presented in the accompanying tabulation entitled "Schedule of General Investigations Program, Fiscal Years 1955 and 1956."

Summary by Activities—Great Basin

Estimated costs of investigations in the current program

Activity	Estimated total	Total, June 30, 1954	Program, fiscal year 1955	Program, fiscal year 1956	Balance to complete
Engineering and economic investigations	$4,152,000	$2,955,569	$352,478	$347,000	$496,953
Total cost	4,152,000	2,955,569	352,478	347,000	496,953
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.			−16,000		
Total obligation program			336,478	347,000	
Less: Unobligated carryover and funds advanced			−11,470		
Allocation of estimate			325,008	347,000	

Schedule of general investigations program, fiscal years 1955 and 1956, Great Basin

Program item (1)	State (2)	Total estimated cost (3)	Cost to June 30, 1954 (4)	Fiscal year 1955 program (5)	Fiscal year 1956 estimate (6)	Balance to complete investigation (7)	Remarks (8)
Engineering and economic investigations:							
Reconnaissance:							
Region 4: Walker River project	California-Nevada	$21,000	$14,522	$6,478	----------	----------	Deferred reconnaissance of potential hydroelectric power development should be resumed and completed in fiscal year 1955 to determine if correlation and possible integration with Washoe project definite plan investigation are desirable and if project investigations are warranted.
Subtotal, reconnaissance	----------	21,000	14,522	6,478	----------	----------	
Project investigations:							
Region 4:							
Bear River project	Utah-Idaho	600,000	448,495	72,000	$65,000	$14,505	Multiple-purpose investigation in progress to develop plan for fullest practicable control and use of Bear River waters now wasting to Great Salt Lake. Report to be completed in fiscal year 1957.
Central Utah project	Utah	2,000,000	1,455,257	126,000	140,000	278,743	The future growth of the entire central Utah is dependent almost entirely on development of additional water supplies. The central Utah project which would import water from the upper Colorado River Basin to the Bonneville Basin is the only means by which an additional supply of water in any quantity could be made available. Construction of the initial phase as a participating project to the Colorado River storage project was recommended in a report dated February 1951. Additional investigations of the initial phase are continuing in fiscal year 1955 and fiscal year 1956 to perfect the plans for this large complex development. Investigation of the ultimate phase should be resumed as soon as definite plan investigation in the initial phase is well advanced.
East Cache project	Utah-Idaho	250,000	242,491	6,000	1,000	509	Authorizing report to be completed in fiscal year 1955 on potential project to provide new and supplemental irrigation water to important agricultural area in Utah and to furnish local communities with firm supply of municipal water. Program for fiscal year 1956 and fiscal year 1957 would collect records for drainage studies.
Gooseberry project	Utah	81,000	78,312	1,000	1,000	688	Report seeking authorization as participating project

Gooseberry project	Utah	81,000	78,312	1,000	1,000	688	Report seeking authorization as participating project to Colorado River storage project completed in fiscal year 1952. Continuing program is to collect basic data on return flow and drainage for use in definite plan studies.
Washoe project	California-Nevada.	1,200,000	716,492	141,000	140,000	202,508	Investigation in progress to evolve plans to increase power generation, lessen flood damage and provide additional new and supplemental irrigation water in western Nevada. Potential development would replace insecure importation of power from plants in California west of Sierra Nevada Range, eliminate heavy flood damage such as occurred in November 1950 and expand agricultural resources of area. Funds scheduled to complete project report on initial phase features in fiscal year 1955.
Subtotal, project investigations		4,131,000	2,941,047	346,000	347,000	496,953	
Total, engineering and economic investigations		4,152,000	2,955,569	352,478	347,000	496,953	
Total cost		4,152,000	2,955,569	352,478	347,000	496,953	
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.				−16,000			
Total obligations				336,478	347,000		
Method of financing:							
Allocation of appropriation				325,008			
Prior year balance available				8,000			
Contributions				3,470			
Allocation of appropriation requirements					347,000		

Mr. EVINS. It appears these funds are to be used to continue existing studies. I note in the justifications you say these programs may include the following:

> Engineering and economic investigations to determine the feasibility of potential reclamation projects; advance planning to prepare newly authorized projects for construction; and investigations of existing projects necessary for rehabilitation, financial adjustments or water conservation.

You say this program may include these projects and you enumerate three.

What will it include?

Mr. DEXHEIMER. This is our best estimate at this time as to how we would expend these funds. We have in the past enjoyed freedom in spending our investigation funds, not earmarked in the bill for any specific project. I think that is very essential to our program, because of the complications that we have. We get so far along in our report and then, as an example, just like Salt Lake City did with the corps, they decide they do not want to join in the investigation. Then we stop and wait until the local people are ready. And we have many more complications, even, before the water is on the projects, because our projects are largely reimbursable and we must negotiate with the local people to enter into repayment contracts. They pay for the investment and, therefore, our investigation programs must be more flexible and we hope your committee will also see fit to give us that flexibility by not earmarking our investigation funds for any specific projects.

TRANSFER OF FUNDS TO OTHER AGENCIES

Mr. EVINS. In your justifications I note you state that in the past, and I pointed this out yesterday under a similar situation, a large portion of these funds is being used for necessary transfers or reimbursements to other agencies, such as the Geological Survey, Fish and Wildlife Service, National Park Service, Weather Bureau, Coast and Geodetic Survey, and others, and then you state:

> The request for fiscal year 1956 includes funds for this same purpose and, in addition, it includes for the first time a request for funds for transfer to the Fish and Wildlife Service for basinwide studies of that agency in connection with basin investigations by the Bureau of Reclamation where such investigations are underway.

In other words, you are asking for additional funds to transfer to another agency of the Government?

Mr. DEXHEIMER. Yes, sir. We are required by several of our statutes to coordinate our work with the other agencies—with the Corps of Engineers, for instance—for determination of the flood control requirements and benefits on all of our projects and how the reservoirs shall be operated for flood control; but we are also required, when we propose an investigation, to coordinate that with the Fish and Wildlife Service, national parks, and all of those others. Before we can send in a report or get approval of the Secretary, we must show that they are in agreement as to how this shall be worked out and whether it has any benefits so far as they are concerned. It has been customary for us to get the funds and then transfer them to those agencies to carry on their part of the planning work.

Mr. EVINS. Mr. Crosthwait indicated yesterday he would submit to the committee a breakdown as to how much of those funds went to the various agencies of the Government.

Mr. DEXHEIMER. That is being done. And quite often we ask the Geological Survey actually to perform some of our investigation work, particularly as regards geological mapping over the general area, underground water studies, and so forth, that they are particularly equipped and qualified to do, rather than our trying to duplicate their organization.

PROJECT INVESTIGATIONS

Mr. EVINS. What are your project investigations?

Mr. DEXHEIMER. Those are the specific investigations of a defined project, something similar to the Washoe project—investigating the uses of that water that is now going to waste and ways that we can put it to use.

DEVELOPMENT OF POWER POTENTIAL OF AREA

Mr. EVINS. On page BR–6 I note this comment:

> Power to meet the demands and increasing amounts of electric energy (over 60 percent last year) must be imported from the critically short Central Valley area of California. All economically justified power potentialities in the project area should be developed to minimize importations as much as possible.

I would certainly say I am in agreement with that statement. What are you doing to achieve those objectives?

Mr. E. O. LARSON. Water from the Sierra-Nevada Mountains which runs into the Nevada area is intended to be used for the Washoe project. We have been searching out the power potentials there, along with our irrigation and the flood-control plans of the Army engineers. We have been working very closely together. We have found, for instance, that power can be developed at two reservoirs proposed for the Washoe project which will fit in with the plants on the stream at the present time. There are now five private power developments on the Truckee River, that have been there for a long time.

Mr. EVINS. Has there been any change in the administration's policy of the Bureau of Reclamation with respect to the development of power in the last few years with the change of administrations?

Mr. DEXHEIMER. Yes, sir; I think there has. The Department's policy was announced in August 1953. The policy has been to emphasize more the local responsibility rather than Federal responsibility for meeting the power needs of any particular area, or for the Nation in general. And while we are still going ahead to build these hydroelectric power facilities whenever we are authorized to do so by the Congress, the emphasis on them has been in trying to get local entities to provide their own power needs with their own capital, rather than for the Federal Government to do it.

Mr. EVINS. How successful have you been in being able to get that accomplished?

Mr. DEXHEIMER. Up to now I think that quite a few, both public and private, bodies have filed with the Federal Power Commission for permits to develop certain areas where we had done some planning,

and I think the Corps of Engineers has some plans on which some of those local entities have filed for permits from the Federal Power Commission.

Mr. EVINS. Has the Bureau of Reclamation followed or do you expect to follow up on those or keep in contact with the Federal Power Commission to see what progress is being made and if they are going ahead?

Mr. DEXHEIMER. Up to now, we, of course, always get a request for comments from the Federal Power Commission before they issue a permit or license. The Interior Department comments on that and suggests, in cases where it is appropriate, certain restrictive language in those permits. But the time has not been great enough so far, since the initial permits were issued, to know whether all of those companies actually are going to go ahead. You see, they have under their permits generally about 2 years to develop their plans and so forth, before they will actually file for a license to go ahead with construction.

Mr. EVINS. Do you determine in your Bureau the feasibility of those projects?

Mr. DEXHEIMER. In some cases; yes, sir.

Mr. EVINS. But you do not go ahead with power developments unless they are specifically authorized by Congress?

Mr. DEXHEIMER. We cannot go ahead with any of our projects without specific authorization of Congress, except that under certain stipulations the Secretary may make a finding of feasibility and authorize a project. But the present Secretary has not seen fit to use that authority.

Mr. EVINS. The only method by which we are getting any additional power today is through the Federal Power Commission's issuing a license upon application from private industry and your commenting upon that. I suppose you would not know how many of those licenses had been granted in the past 2 years by the Federal Power Commission?

Mr. DEXHEIMER. They are, I think, primarily permits which allow them a certain time to investigate and develop the project before they are given a license. I know of 4 or 5 permits of that type that have been issued by the Federal Power Commission. But, in addition to that, of course, I would like to call your attention to the fact that the administration, and the President particularly, has recommended strongly that the Bureau of Reclamation go ahead with the Upper Colorado Storage project and participating projects which would develop approximately 1 million kilowatts initially at the hydroelectric powerplants. The Fryingpan-Arkansas project which would develop some three or four hundred thousand kilowatts of power in southern Colorado, is also strongly endorsed by the Administration.

CONSTRUCTION, BUREAU OF RECLAMATION

WEBER BASIN PROJECT

Mr. EVINS. We next come to "Construction, the Weber Basin project." We will insert in the record pages BR–228 to BR–230 of the justifications.

(The matter above referred to is as follows:)

WEBER BASIN PROJECT, UTAH

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$63,187,000
Total obligations to June 30, 1954		5,831,270
Allotment, fiscal year 1955	$7,870,000	
Prior year balance available	30,000	
Total obligations, fiscal year 1955		7,900,000
Allotment, fiscal year 1956	10,895,000	
Total obligations, fiscal year 1956		10,895,000
Balance to complete		38,560,730

WORK PROPOSED, FISCAL YEAR 1956

Wanship Dam and Reservoir ($2,904,000): The programed amount will be required for contractor's earnings under the prime contract for continuing construction of Wanship Dam, for clearing the reservoir area, for access roads, and for acquisition of land and water rights. This dam, which is the key feature of the initial development, is scheduled to be completed in the spring of 1957.

Wanship power facilities ($27,700): Includes the powerplant, switchyard, and an interconnection to existing transmission facilities. The programed amount will be for the preparation of final designs and specifications in order that construction could be undertaken in fiscal year 1957 and power made available in fiscal year 1958 for irrigation pumping in the east shore area 1 year after the initial water is available.

Lost Creek Dam and Peservoir ($8,000): The amount programed is a pro rata portion of the project development costs.

East Canyon Dam and Reservoir enlargement ($5,000): The amount programed is a pro rata portion of the project development costs.

Gateway Canal and diversion works ($1,855,000): The construction contract will be awarded in the first quarter for the Stoddard diversion works and the connecting canal section along with supply contracts for the purchase of fish screens, metalwork, and minor supplies. Construction will continue and progress payments will be made under the prime contract for the Gateway Canal. These facilities are scheduled for completion concurrently with Wanship Dam in order to convey conserved Weber River flows to project lands.

Gateway power facilities ($95,700): Includes the powerplant and switchyard. The programed amount will be for the preparation of final designs and specifications to permit start of construction in fiscal year 1957 in order that power for pumping in initial development areas will be ready in fiscal year 1958, 1 year after the first water is available.

Weber aqueduct ($598,000): The major portion of the programed amount will be required for contractor's earnings under the prime contract (awarded fiscal year 1954). This facility will provide for distribution of part of the water to be made available through Wanship Dam and the Gateway Canal and diversion works.

Davis aqueduct ($2,950,381): Construction will continue under the prime contract (awarded fiscal year 1953) for schedules 1, 2, and 3 of the aqueduct. The award of contract for schedule 4 of the aqueduct will be made in the first quarter. The rights-of-way will be acquired prior to the start of construction of schedule 4. This facility will provide for distribution of the remaining water to be made available through Wanship Dam and the Gateway Canal and diversion works.

Pineview Dam and Reservoir enlargement ($1,722,600): Construction of the dam will continue with the major portion of the programed amount required for contractor's earnings under the prime contract (awarded fiscal year 1955). In addition, a contract will be awarded for the clearing of the reservoir area in the fourth quarter.

Slaterville diversion works ($91,000): The construction contract for the diversion works will be awarded in the fourth quarter. Minor supply contracts will also be awarded. Acquisition of rights-of-way will be completed prior to award of prime contract. Construction of this facility is geared with the Pineview Dam enlargement.

Willard Canals and pump ($104,000): Field data required for designs and specifications will be collected for the canals and submitted to the chief engineer. Acquisition of rights-of-way will commence in this year.

Willard Dam and Reservoir ($200,000): Field studies required for designs and specifications will be completed and design data submitted to the chief engineer. Acquisition of rights-of-way will commence in this year.

Warren Canal enlargement and laterals ($3,000): A relatively small amount of investigational work will be undertaken in connection with the development of the project plan.

Layton Canal, pump, and laterals ($43,000): Preconstruction surveys will be made for the canal and data assembled for the designs and specifications. A relatively small amount of investigational work will be undertaken on the pump and laterals.

Drains ($248,000): Collection of field data will be continued leading toward the development of a definite project drainage plan. Also, preconstruction surveys will be made and the required field data for designs and specifications collected and a contract will be awarded for the construction of a section of project drain. These drains are vital to prevent damage to productive land by seepage.

General property ($20,000): The programed amount will be used for cooperative work with other Federal agencies in planning and designing the project recreational facilities.

Mr. EVINS. The estimated cost for construction of the Weber project is $65,262,000. The budget request in fiscal 1956 is $10,895,000.

Will you explain briefly for the record the main items of project construction which you plan for next year?

Mr. E. O. LARSON. We have asked for $2,904,000 for the continuation of construction of the Wanship Dam and Reservoir. That dam is under construction, and the contractor has notified us officially that he intends to speed up his program and largely complete it during 1956.

The next item is $27,700 for the Wanship power facilities. That is for the preparation of final designs and specifications for a small powerplant and switchyard and interconnection to the existing transmission facilities.

For Lost Creek Dam and Reservoir $8,000 is requested. That is needed to study and develop this unit in more detail before construction is undertaken.

There is a similar estimate of $5,000 for the East Canyon Dam and Reservoir enlargement for continued studies.

For the Gateway Canal and diversion works, $1,855,000 is requested for the continuation of construction. The canal is under construction; the diversion dam is not yet started, but we would like to start construction at the beginning of fiscal year 1956.

The next item is for the Gateway power facilities, $95,700, mostly for completing studies on the small Gateway powerplant and for preparation of plans and specifications. I might say at this point that our plan is to start construction of the Wanship powerplant and Gateway powerplant beginning with the following fiscal year, so that they could be in operation when the Wanship storage reservoir is filled and ready for operation.

For the Weber aqueduct, $598,000 is requested. The major portion of the programed amount will be required for contractor's earnings under the prime contract awarded during fiscal year 1954.

For the Davis aqueduct, $2,950,381 is to continue construction under the contract awarded in fiscal year 1953 for schedules 1, 2, and 3 of the aqueduct.

For the Pineview Dam and Reservoir enlargement, $1,722,600 is requested. Construction of the dam will continue with the major

portion of the programed amount required for contractor's earnings under the prime contract. We plan to award the contract on that dam before the end of the present fiscal year.

For the Slaterville diversion works, $91,000 is requested. The construction contract for the diversion works will be awarded in the fourth quarter of fiscal year 1956.

The requirements for Willard canals and pump is $104,000, and this amount is needed for obtaining field data required for design and specifications to be collected for the chief engineer; also to commence the acquisition of rights-of-way.

There is a requirement of $200,000 for the Willard Dam and Reservoir for field studies required for designs and specifications and to complete all the data for the use of the Chief Engineer. The acquisition of rights-of-way will also start during the fiscal year 1956.

For the Warren Canal enlargement and laterals, $3,000, a relatively small amount, is needed for investigation work to be undertaken before this feature is constructed.

For a similar activity, $43,000 is needed for the Layton Canal, pump and laterals, for preconstruction surveys and assembling data for designs and specifications.

Then there is needed an item of $248,000 for drains, for the collection of field data, which will be continued, leading toward the development of a definite project drainage plan. In this connection, the project plan calls ultimately for the reclaiming of some 30,000 acres of good farmland through drains, that are now too waterlogged to permit the land to be farmed.

Then there is a miscellaneous item of $20,000 for general property, for cooperative work with other Federal agencies in planning and designing the project recreational facilities.

STATUS OF REPAYMENT CONTRACTS

Mr. EVINS. I notice under "Allocation of costs" you have $35 million for irrigation and $17 million for municipal water. What is the status of your various repayment contracts for municipal water?

Mr. E. O. LARSON. First of all, we have a master contract already executed with the Weber Basin Conservancy District for the repayment of all reimbursable costs of the project. Then, following that, the Weber Basin Conservancy District negotiated contracts with some 23 cities and towns and those negotiations are quite far along. The total amount of water to be disposed of initially to municipalities is about 20,000 acre-feet and the conservancy district either has applications or has subscription contracts already approved for the total amount.

Mr. EVINS. I believe the testimony before this committee last year was that these contracts had not been negotiated. They have been subsequent to that time?

Mr. E. O. LARSON. That is right. We are getting along very well with it.

Mr. EVINS. You said the contracts relating to the Pineview Dam and Reservoir Enlargement are being negotiated. What is the status of the negotiations?

Mr. E. O. LARSON. The contract arrangement between the Weber Basin Conservancy District and Davis County for the 5,000 acre-feet

of storage water in the Echo Reservoir has not been completed. They are working on it, and I do not anticipate any problems in connection with it.

Mr. EVINS. When do you expect to complete that contract?

Mr. E. O. LARSON. For this 5,000 acre-feet?

Mr. EVINS. For the Pineview enlargement.

Mr. E. O. LARSON. I do not know which contract you refer to.

Mr. EVINS. I am reading from your justifications, page BR–226, and in the last sentence under "Repayment" you state that they are being negotiated. I ask you when you expect these contracts to be completed?

Mr. E. O. LARSON. Within the next 2 or 3 years.

Mr. EVINS. Within the next 2 or 3 years?

Mr. E. O. LARSON. Yes, sir.

Mr. EVINS. Your report indicates that you are asking for construction funds for next year. You are asking for $1,722,600 for construction funds at Pineview for next year, and then you state that the contracts will not be executed, I think, for at least 2 years.

Mr. E. O. LARSON. I am sorry. I thought you meant with the water users on the Ogden River project for the operation of the enlarged Pineview Reservoir. That is a construction contract you refer to. We intend to award that contract before the end of the fiscal year 1955.

Mr. DEXHEIMER. I think that there is a little misunderstanding here, Mr. Chairman.

The overall contract, including all of the repayment obligations under the Weber Basin project, which totals $57,694,000, has been executed. That covers generally all reimbursable construction costs, including the Pineview enlargement.

These other contracts are subcontracts negotiated by the Weber Basin Water Conservancy District with these smaller entities within that district. I think that there will be a total of some 52 of those subcontracts, some that they need to negotiate yet.

I think over half of those have been negotiated, but they are not, really, a requirement, as far as we are concerned, as the Government has its guaranty of repayment.

Mr. EVINS. Do you have a contract for the repayment of the cost for the Pineview enlargement at this time?

Mr. E. O. LARSON. Yes, sir; that is part of the total cost of $57 million covered by the master repayment contract.

Mr. EVINS. As to these other contracts you anticipate no difficulty in their negotiation?

Mr. DEXHEIMER. We anticipate no difficulty. The Weber Basin Water Conservancy District is responsible for and is negotiating those contracts to support their repayment contract with the Government.

Mr. E. O. LARSON. I might add that the district has more applications for water than there is water available.

Mr. DEXHEIMER. There is, Mr. Chairman, a little difficulty that has been raised by the people in the district that the Fineview Dam was originally built for, and perhaps that has a bearing on the main question. The Pineview Dam was built some years ago and the district that now operates the dam has been trying to insist on a repayment of part of that cost by this overall district rather than paying for the cost of the enlargement alone.

Mr. EVINS. You recognize that the appropriate time to negotiate these contracts is prior to the time of entering into a contract for construction and not after the Government has spent money and the project has been built. A substantial part of these funds are for municipal water and if contracts are going to be negotiated they should be negotiated early in the proceedings.

Mr. DEXHEIMER. Yes, sir, but this overall district, the Weber Basin Water Conservancy District, has entered into a contract, and so far as the Government is concerned that covers all of these things. They then, in turn, negotiate with these smaller entities to repay their part of the cost for the sale of water to municipalities, so that the Federal Government has discharged its part in getting the overall repayment contract negotiated. We are trying to help the district in working out these other contracts of course.

Mr. HAND. Let me understand this, Mr. Commissioner, are these construction projects within the Weber Basin project, Wanship Dam and Reservoir, Wanship power facilities, Lost Creek Dam and Reservoir, East Canyon Dam and Reservoir, and so forth, contracts for projects in which the Government is a contracting party or are they subcontracts which are negotiated by the conservancy district?

Mr. DEXHEIMER. Perhaps a little explanation, Mr. Hand, would help. We have this overall plan which includes all of these features and some more that we are planning on.

Mr. HAND. With respect to this Weber Basin project you have executed a contract with the conservancy district?

Mr. DEXHEIMER. Yes, sir; that is a conservancy district under the Utah State law and they levy a mill tax on real property as part of the repayment support.

Mr. HAND. Are they limited in their levy by Utah law?

Mr. DEXHEIMER. Yes, sir. The overall conservancy district has signed this contract with us.

Mr. HAND. Yes.

Mr. DEXHEIMER. So that the Federal Government has a contract for all repayment properly required in this whole development.

Mr. HAND. What is the nature of the contract? How and when do they repay?

Mr. DEXHEIMER. They repay within a period of 60 years all of the reimbursable costs allocated to this work. As I have mentioned previously the total of obligations under that contract for repayment is $57,694,000.

Mr. HAND. They repay that, as I understand it, without interest, is that correct?

Mr. DEXHEIMER. Without interest on the irrigation parts of it.

Mr. HAND. Yes.

Mr. DEXHEIMER. The municipal water investment is to be paid back with interest. That contract was executed on December 12, 1952.

Mr. HAND. What is the rate of interest on the portions of the contract on which interest is payable?

Mr. DEXHEIMER. It is 2 percent on the municipal water investment.

Mr. HAND. Have there been any calculations made at any time, Mr. Commissioner, which might indicate that if they paid interest we would be better off to get the interest than we would the repayment of the principal without interest?

Mr. DEXHEIMER. That, of course, is a calculation that can be made. At 3 percent interest on these interest-bearing items the interest, of course, amounts to about the same amount as the capital in about 50 years.

Mr. HAND. About 90 percent.

Mr. DEXHEIMER. Some of our repayments, by special act of Congress, run longer than 50 years.

Of course, the principle that the irrigation investment will be interest-free is much the same as the principle of providing interest-free money for navigation, flood control, and many other things that the Federal Government does.

Mr. HAND. When we get to these items of contracting for the construction of Wanship Dam and Reservoir, Wanship power facilities, Lost Creek Dam and Reservoir, and so forth, they are contracts directly between us and primary contractors and not contracts which have been negotiated and executed by the conservancy district?

Mr. DEXHEIMER. No. Those contracts for the construction of the work are advertised and let by the competitive bidding system by us under my direction. We sign the contracts and the contractors do the work, and we pay them.

Mr. HAND. Yes.

Mr. DEXHEIMER. That is what we need these appropriations for and our budget shows how much we plan to spend this fiscal year for the various items in meeting the contract payments under those contracts.

ITEMS UNDER CONSTRUCTION CONTRACT

Mr. HAND. Are all of these items under contract?

Mr. DEXHEIMER. No, sir; there are quite a few items which we are still planning, and on some of them we hope to let contracts during this fiscal year, and others will not be let for some time.

Mr. HAND. Have you already given us a list of those which are not under contract as yet?

Mr. DEXHEIMER. The listing is here in the justification as to how we will use the fiscal year 1956 funds, and you will note in the case of the larger items, Gateway Canal and diversion works, the Weber aqueduct and the Davis aqueduct, that those things are under construction. We have payments to meet during the next fiscal year on those.

There are several items here where we want money just for bringing our specifications up to the point where we can advertise, and there are other items that include only planning in order to be ready to go ahead with the work in the following fiscal years.

Mr. HAND. That is all indicated in the detail of your justifications, is it not?

Mr. DEXHEIMER. Yes, sir.

WASHOE PROJECT

Mr. HAND. Now, Mr. Commissioner, if I may, I would like to go back, with the chairman's permission, to the Washoe project.

That, of course, is not under construction in any degree, is it?

Mr. DEXHEIMER. No, sir; that is just in the planning stage.

Mr. HAND. You are requesting $140,000 more for the completion of your investigation, or will that amount complete it?

Mr. DEXHEIMER. No, sir; that is only the workload during the next fiscal year. It will be some time yet before the complete plan is ready.

Mr. HAND. Well, is it not a fact, Mr. Commissioner, that your Bureau has a pretty complete report on that?

Mr. DEXHEIMER. We have what we term, I think a feasibility report for the purpose of authorization of the project.

Then we need the funds after that to do what we call advance planning and get all of the requirements we are required to have in the way of economic studies, detailed plans, interest payments, and so forth.

Mr. HAND. What do you call the report that you have presently, the feasibility report?

Mr. DEXHEIMER. Yes, we call it the feasibility report.

Mr. HAND. Does that show the probable cost of the entire project, Mr. Commissioner?

Mr. DEXHEIMER. Yes, it should show it.

Mr. E. O. LARSON. The report that we have now covers the first phase of the Washoe project, a total cost of about $43 million.

Mr. HAND. A total cost of $43 million?

Mr. E. O. LARSON. Yes, but there is a chance to go beyond that phase into a much larger development, depending on what the final plan is, which is to be worked out with the Corps of Engineers.

Mr. HAND. Well, the first phase is a phase which, if completed, would be useful, of course, by itself, is that so?

Mr. E. O. LARSON. Yes, sir, and it is the phase desired by all of the local interests.

Mr. HAND. The estimated probable cost of that first phase is $43 million?

Mr. E. O. LARSON. Yes, sir.

Mr. HAND. Are you doing any planning with regard to any further phases?

Mr. E. O. LARSON. Yes, sir. We have a small engineering force on investigations concerning the Truckee, the Carson, and Walker Rivers.

Mr. HAND. You are planning a second phase which would be even larger than the first phase?

Mr. E. O. LARSON. Yes. They are looking into the second phase and some refinements of the first phase which have been brought to our attention by the views of the local people which were brought up after the report was out.

Mr. HAND. Is there any estimate of the probable cost of the second phase?

Mr. E. O. LARSON. I cannot recall that figure at this moment.

Mr. HAND. Can you supply it for the record?

Mr. E. O. LARSON. No, sir. We will have to wait on the detailed estimated costs of the two phases when they complete the overall studies.

Mr. HAND. Do you have any present estimates on which the Bureau is predicating its thinking on the second phase?

Mr. E. O. LARSON. No, sir; except it would not be larger than the first phase.

Mr. HAND. It would not be larger than the first phase?

Mr. E. O. LARSON. No, sir.

Mr. HAND. Would it be comparable to the first phase in cost?

Mr. E. O. LARSON. Yes; but it depends on what the engineering studies show as to how far we can go beyond the first phase.

Mr. HAND. Does the feasibility report indicate the expected benefits from this project when completed?

Mr. E. O. LARSON. It covers the benefits from the first phase; yes, sir.

Mr. HAND. Does it indicate the possibility of obtaining appropriate repayment contracts?

Mr. E. O. LARSON. Yes, sir.

Mr. HAND. Is your present report available for the committee?

Mr. E. O. LARSON. Yes, sir. I do not have it here, but it can be made available to the committee.

Mr. HAND. What States will the Washoe project affect?

Mr. E. O. LARSON. The Washoe project will affect mostly the State of Nevada, but there are some small developments within the State of California.

Mr. HAND. Do the laws of both California and Nevada provide adequately for conservancy districts?

Mr. E. O. Larson. No sir; except the State of Nevada during this past session of the legislature, a month or two ago, passed a Conservancy District Act looking toward the construction of this project. Also the States of California and Nevada have both passed acts within the last 60 or 90 days authorizing a compact between the 2 States covering the Carson, the Walker, and the Truckee Rivers, so that they will have their water rights ironed out for this project.

Mr. HAND. Is this a multiple-purpose project providing for flood control, irrigation, and also power?

Mr. E. O. LARSON. Yes, sir.

Mr. HAND. What is the power potential?

Mr. E. O. LARSON. 28,000 kilowatts in the first phase.

Mr. HAND. Is that what we call firm power?

Mr. E. O. LARSON. Mostly; yes, sir. It is 95 million kilowatt-hours annually.

Mr. HAND. Thank you.

DEER CREEK POWERPLANT, AND WEBER-PROVO DIVERSION CANAL

Mr. JENSEN. Mr. Larson, what are your recommendations in regard to the Deer Creek powerplant and Weber-Provo diversion canal in connection with the Provo River project?

Mr. E. O. LARSON. I will first answer your question as it relates to the canal. Following completion of enlargement, the canal was turned over to the Provo River Water Users' Association for operation and maintenance as a part of the project works in May 1952. Excessive seepage occurred in the first 4 or 5 miles of the 9-mile canal. As a result, I recommended a clay-lining program for those reaches where the seepage was the heaviest. This program has been followed during the past 2 years for about 3 miles and, in view of the successful results obtained as verified by studies and measurements made during the past irrigation season, the water users have by resolution requested that the remaining 2 miles be lined in the same manner. The necessity for lining the remaining 2 miles was not known sufficiently early to include a request for funds in the Bureau's fiscal year 1956 construction program submitted to the Bureau of the Budget.

It is my recommendation, however, that the lining be completed as soon as funds can be made available as it is now known that the clay lining of the remaining 2 miles of the previous section of the canal would be very beneficial to the project in conserving the water supply. All costs for lining the canal are repayable by the water users under the provisions of the repayment contract.

As to the Deer Creek powerplant, it was considered a necessary part of the Provo River project at the time the project was authorized in 1936. The plant was recommended for construction by me as outlined in a report dated June 1951 and in a definite plan report dated September 1952. The 1951 report is included in House Document No. 37, 83d Congress, 1st session, covering a finding of feasibility dated August 2, 1951. However, funds for starting construction have not been considered by the Bureau of the Budget. A request for funds for fiscal year 1956 was not submitted by the Bureau of Reclamation for the reason that the project water users were considering alternative plans for constructing the plant themselves. It is my recommendation, however, that the powerplant be started as soon as funds are available.

Mr. JENSEN. Has the controversy regarding who should build the plant on this project been resolved?

Mr. E. O. LARSON. Yes, sir. After considering the alternative plans, the Provo River Water Users' Association recently concluded that it would be to the best interests of the water users and the United States to have the plant constructed by the Bureau of Reclamation as originally contemplated, with the plant to be operated and maintained by the association along with the operation and maintenance of all other project features as provided by the terms of the repayment contract. The association has now requested the Secretary of the Interior by letter dated March 9, 1955, to proceed with the construction of the powerplant as soon as funds can be provided for that purpose. It is my understanding that the Secretary is advising the association that he is willing to have the Bureau of Reclamation proceed with construction when funds become available for that purpose.

The powerplant ties in directly with the obtaining of a water supply for the Provo River project and what is termed the power contract of 1938 among the Provo River Water Users' Association, the Utah Power & Light Co., and the United States. The entire winter flow of the Weber River is decreed to the power company for the generation of hydroelectric energy at its Weber and Riverdale plants which were constructed many years ago. The Provo River project is dependent for a substantial portion of its water supply from the winter flows of the Weber River. In order to provide for the exchange of winter power water needed for the Provo River project from the Weber River, the arrangement was made by the United States and the asssociation with the power company as incorporated in the power contract, whereby the power losses occurring at the company's plants on the Weber River by reason of the diversion of the winter power water would be replaced onto the company's lines near the Deer Creek Dam from the Deer Creek powerplant. The Deer Creek plant would consist of 2 generating units of about 2,500 kilowatts each, thereby generating about 25 million kilowatt-hours annually of which about 8 million kilowatt-hours would be used for re-

placement of power losses, and the balance would be power for sale and for other project purposes. The present estimated cost of the powerplant is $1,051,000, which includes $52,000 for a share of the cost of the present outlet works and substructure and $20,000 for past investigation expenditures.

The repayment contract between the United States and the association provides that the net revenues from sales of power shall be applied on the project costs until all costs on the Deer Creek division of the Provo River project have been repaid and shall then be used as Congress may direct.

NORTH PACIFIC DRAINAGE BASIN

WITNESSES

CORPS OF ENGINEERS

COL. WILLIAM WHIPPLE, EXECUTIVE FOR CIVIL WORKS, OFFICE OF CHIEF OF ENGINEERS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL, OCE
COL. J. U. ALLEN, ASSISTANT CHIEF OF CIVIL WORKS FOR RIVERS AND HARBORS, OCE
COL. W. F. POWERS, CHIEF, OPERATIONS DIVISION CIVIL WORKS, OCE
B. JOSEPH TOFANI, CHIEF, PROGRAM BRANCH, OCE
C. M. CONWAY, PLANNING AND DEVELOPMENT DIVISION, OCE
BRIG. GEN. E. C. ITSCHNER, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS

DEPARTMENT OF THE INTERIOR

W. A. DEXHEIMER, COMMISSIONER OF RECLAMATION
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER OF RECLAMATION
C. H. SPENCER, REGIONAL DIRECTOR, SACRAMENTO, CALIF.

Mr. EVINS. The committee will consider the North Pacific drainage basin estimates at this time.

Mr. Reporter, will you insert in the record at this point, the summary statement of the appropriation justifications and the usual fiscal data?

(The matter referred to is as follows:)

North Pacific

Appropriation	Corps of Engineers	Interior, Reclamation
General investigations	$23,600	$158,442
Advance engineering and design	50,000	
Construction	1,120,000	350,000
Operation and maintenance	3,173,000	
Total	4,366,600	508,442

BUREAU OF RECLAMATION

CONSTRUCTION AND REHABILITATION

Actual unobligated balances, June 30, 1954, and Mar. 31, 1955, and estimated, June 30, 1955

NORTH PACIFIC BASIN

Project	Actual unobligated balance, June 30, 1954	Actual unobligated balance, Mar. 31, 1955	Estimated unobligated balance, June 30, 1955: field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Drainage and minor construction	$114,994	$8,009		$6,000	$6,000
Total, North Pacific Basin	114,994	8,009		6,000	6,000

CORPS OF ENGINEERS

NORTH PACIFIC BASIN

Project	June 30, 1954		Mar. 31, 1955		June 30, 1955 (estimate)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Navigation: Grays Harbor and Chehalis River, Point Chehalis	$155,547	$155,547	$8,860	$8,860	0	0
Flood control: Eagle Gorge Reservoir	0	0	0	0	0	0

GENERAL STATEMENT

Mr. EVINS. Colonel Whipple, will you give the general statement on this project?

Colonel WHIPPLE. Yes, sir.

I will have the items pointed out on the map as we come to them.

Mr. EVINS. I think it might be well, Colonel, for you to have the chart explained to the committee.

Colonel WHIPPLE. The chart is simply a map showing the portions of the North Pacific drainage area. On this map are indicated the projects which are mentioned during the discussion. I will have Mr. Cohen point the localities out as I come to them in my statement because it is rather difficult to follow, otherwise, as to exactly what we are talking about in this extensive coastal area.

The North Pacific drainage area consists of the coastal areas of Washington and Oregon, draining into Puget Sound and the Pacific Ocean, the two areas being separated by the Columbia River Basin. The area in Washington extends eastward to the Cascade Mountains. The Oregon area south of the Columbia River lies west of the Coast Range; in southern Oregon, the drainage basin extends eastward to the Cascade Range and south to include the Smith River drainage basin in the northwest corner of California.

The coastal areas of Washington and Oregon have undergone a marked population growth in the past 15 years, particularly around Puget Sound, which is the area of greatest population concentration and industrial development in this drainage basin. Between 1940 and 1950 the population increase in this drainage basin was in excess of 40 percent compared to an increase of only about 14 percent for the entire United States during this same period. Seattle, which

is one of the major seaports on the Pacific coast is the nearest major Northwest port to the Orient and Alaska.

Timber resources are of predominant importance in the economy of the Pacific coastal regions of Oregon and Washington and in the Puget Sound area, and there is extensive movement by water of lumber products. The fishing industry is also an important basic industry in both States, and has shown greatly increased activity in the past few years with attendant expansion of the fishing fleet. Available areas of agricultural land in the basins are intensively developed, supporting production of valuable truck crops in the Puget Sound area, and dairying and production of specialty crops in the central and southern Oregon watershed. Damaging floods occur in certain areas including both agricultural and urban lands. In the North Pacific drainage basin, reclamation activities to date have been confined to the southern part in Oregon. Although annual rainfall is generally quite high, rainfall during the growing season amounts to only one-fourth the average annual precipitation, and during the months of July and August the rainfall is often less than 1 inch. Such an amount is inadequate for efficient crop production, and storage and water conveyance facilities are desirable for intensive agricultural development. Streams in this area are small, and their development must be planned as self-contained units.

NAVIGATION

As regards navigation there were 46 million tons of cargo moved over waterways of this area in 1953. Navigation facilities have been provided consistent with the concentration of trade and population.

Included in the program are deep-draft harbors for general foreign and domestic commerce; harbors and channels necessary to the marketing of the forest resources, which include not only deep-draft harbors for ships of the foreign and intercoastal trade, but also harbors of lesser depth for the coastwise trade; and also numerous feeder channels for movement of barges and log rafts. The importance of the fishing industry in the area has warranted a number of improvements of entrance channels and provision of mooring basins for the fishing fleet.

Important deep-draft harbors serving general commerce are those at Seattle, Tacoma, and Olympia in Puget Sound. Deep-draft harbors and channels primarily for the lumber trade are at Bellingham Harbor, Grays Harbor and Chehalis River, and Willapa River and Harbor in Washington, and at Yaquina Bay, Umpqua River, and Coos Bay in Oregon. There are in addition 14 completed harbor and channel improvements in Washington and 7 in Oregon, varying in depth from 3 feet to 30 feet, for the benefit of the lumber trade, general barge navigation, log rafts, towboats, ferry traffic, fishing boats, and other small craft.

Additional work is required at Olympia Harbor for completion to project dimensions and also at Tacoma Harbor, including the recently authorized extension of the Port Industrial Waterway. Other authorized improvements provide for greater depth of channels at Grays Harbor and Chehalis River and for a deepwater channel at Port Angeles, both for the accommodation of vessels in the lumber trade. Work is now underway at Grays Harbor and Chehalis River on the seawall protection. Boat basins, channels, and other improvements, including modifications of existing projects, for fishing craft

and miscellaneous small boats have been authorized at 12 localities in Washington. In addition, there is a continuing project for removal of snags and obstructions in Puget Sound and tributary waters. In Oregon there are 10 new projects or additions to existing projects authorized for shallow-draft vessels on which work has not been initiated. No new work is scheduled in fiscal year 1956 on any of these projects.

FLOOD CONTROL

A major flood-control project has been completed in the Puyallup River watershed providing protection to agricultural lands in the industrial section of Tacoma. The project includes Mud Mountain Dam on the White River, channel work through Tacoma, and bank protection of the upper Puyallup River. Local protection projects have been completed on the Stillaguamish River in Washington and on the Umpqua, Yaquina, and Nehalem Rivers in Oregon. No work has been done on an authorized project for protection of Raymond on the Willapa River.

A major flood-control project on which initiation of construction is proposed in fiscal year 1956 is the Eagle Gorge Reservoir on Green River in Washington.

The Rogue River Basin project, which has been authorized for construction by the Bureau of Reclamation, primarily as an irrigation project, will also provide facilities for flood protection in the project area for the city of Medford, Oreg.

POWER

The small hydroelectric generating plant which is to be constructed in connection with the irrigation facilities of the Rogue River project of the Bureau of Reclamation is the only Federal powerplant currently authorized in the North Pacific Basin. The Rogue River plant will provide 16,000 kilowatts of generating capacity to meet local requirements for peaking power. The power requirements of the Puget Sound area are very great, and must be served largely by hydroelectric power projects in the Columbia Basin, to the east.

IRRIGATION

The major goal for the Bureau's work in the North Pacific Basin is the provision of a firm water supply for a relatively small development of irrigated agriculture. This objective is being attained by the construction or rehabilitation of storage and water conveyance facilities. To this end rehabilitation of Savage Rapids Dam has been completed during the current year. During fiscal year 1956, the Bureau proposes to initiate rehabilitation of irrigation facilities now inadequately serving the Medford and Rogue River Valley Irrigation Districts. The Bureau is not engaged in any construction activities in the basin at the present time, but further investigations are underway in southern Oregon.

CONCLUSION

In conclusion, provision of water-transportation facilities to serve the region's basic industries of lumbering and fishing has been an important factor in the growth and development of the basin's economy. Continued improvement of harbors and channels to meet the

changing and expanding needs of trade and commerce will remain a major requirement of sound water resource planning in this basin. Flood-control improvements have been authorized primarily for portions of the highly developed Puget Sound area. There are other areas in the basin subject to flood damage, protection of which may be required as population and economic development continue to expand. Reclamation activities are important to the southern portion of the basin. Projects have and will continue to incorporate the several needs of the area through coordination of the plans of the Federal and local agencies. The Rogue River project, authorized for construction by the Bureau, primarily an irrigation project, will provide joint use storage for flood protection.

POWER REQUIREMENTS OF THE REGION

Mr. EVINS. Thank you, Colonel Whipple, for your interesting statement.

I return to that section of your statement with reference to power where you say that—

The small hydroelectric generating plant which is to be constructed in connection with the irrigation facilities of the Rogue River project of the Bureau of Reclamation is the only Federal powerplant currently authorized in the North Pacific Basin.

Colonel WHIPPLE. Yes, sir.

Mr. EVINS. You have only one small hydroelectric powerplant in the whole North Pacific Basin. You say this plant—

will provide 16,000 kilowatts of generating capacity to meet local requirements for peaking power—

and then in the next sentence you say—

The power requirements of the Puget Sound area are very great.

I wonder what has brought about the changeover by the Corps of Engineers, or the Bureau of Reclamation on the building of power-generating facilities in connection with all of these projects where we are undertaking construction throughout the country.

Colonel WHIPPLE. I think that can be answered, sir, on the larger aspects of the region as a whole, going a little beyond the confines of this basin.

The streams in this particular basin are mostly quite small, although there are power developments on some of them. Generally, the hydroelectric potential within about 200 miles of the coast is extremely great, but it is to the east of the Cascade Mountains.

There are no major Federal potential power developments to the west of the Cascade Mountains, although two-thirds of the power requirements of the entire Pacific Northwest lie in that area, so that the general overall plan calls for development of this hydroelectric power in the good dam sites.

Bonneville is the most westerly of them, and many million kilowatts of potential power production exist in this area. This power is well within the transmission distance to the Puget Sound area, the Willamette Basin, and the Portland area, where the greater part of the powerload exists.

Mr. EVINS. Is there a conflict there in your statement? You stated earlier that there are small streams or small rivers in that area, and then I understood you to state that in this area there are great possibilities of power development.

Colonel WHIPPLE. No, sir; in the entire Pacific Northwest there are great possibilities of it.

Mr. EVINS. Do these possibilities extend beyond the North Pacific drainage area?

Colonel WHIPPLE. They are to the east of the North Pacific drainage area, but within transmission distance to the areas where the greater load exists.

Mr. EVINS. But they do not exist within the North Pacific drainage area, in your opinion?

Colonel WHIPPLE. No, sir.

Mr. DEXHEIMER. If I may, I would like to add to that a little bit, because I am more or less familiar with the area. The streams that are good potential power developments have largely been developed either by private utilities or municipalities.

Mr. EVINS. Is this in the North Central Pacific drainage area?

Mr. DEXHEIMER. I am talking about these areas we are speaking about here specifically.

The city of Seattle has rather large hydroelectric developments. The city of Tacoma has quite large hydroelectric developments, and both of them, in conjunction with that hydroelectric development have steam plants.

In addition to that there are a great many public utility districts and private power companies in that area. There is the Puget Sound Power & Light Co. in the Seattle area, and the Oregon Power Co. in the Oregon part of that basin, and to a large extent today the larger streams and the larger hydroelectric potentials have been developed under others than the Federal Government. The Bureau of Reclamation is authorized to go in these areas to undertake only those hydroelectric developments that tie into flood control, irrigation, navigation, or other uses of the water.

Mr. EVINS. Most of the excellent potential power sites are east of this drainage basin?

Mr. DEXHEIMER. The largest ones, of course, are in the Columbia River watershed.

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

Mr. EVINS. The amount of $17,600 is being requested for work on 4 studies in the North Pacific drainage area during the fiscal year 1956. The amount will permit the completion of three reports and resumption of work on the other.

These include Bellingham Harbor, Friday Harbor, Grays Harbor and Chehalis River, and Tacoma Harbor.

For flood control studies you are requesting $6,000 for resumption of work on Cedar River, Wash., or a total for navigation and flood control of $23,600.

Mr. Reporter, insert in the record at this point pages 1 and 2 of the justifications.

(The matter referred to is as follows:)

NORTH PACIFIC DRAINAGE AREA—JUSTIFICATION OF ESTIMATE

GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. Examinations and surveys

(*a*) *Navigation studies.*—The amount of $17,600 is requested for work on 4 studies in the north Pacific drainage area during fiscal year 1956. The amount will permit completion of three reports and resumption of work on the other.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Washington:				
Bellingham Harbor	$10,000	$2,700	$7,300	0
Friday Harbor	2,500	0	2,500	0
Grays Harbor and Chehalis River	2,800	0	2,800	0
Tacoma Harbor	12,500	1,200	5,000	6,300
Total	27,800	3,900	17,600	6,300

(*b*) *Flood-control studies.*—The amount of $6,000 is requested for resumption of work on the Cedar River, Wash., study during fiscal year 1956.

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Washington: Cedar River	$21,000	$9,000	$6,000	$6,000
Total	21,000	9,000	6,000	6,000
Grand total	48,800	12,900	23,600	12,300

Mr. EVINS. What are the justifications for these new studies for which you are requesting funds?

Mr. CONWAY. The money requested will complete the study of Bellingham Harbor, and the consideration there is the deepening of the harbor to compete with the other areas on Puget Sound. The present authorized depth at Bellingham Harbor is 26 feet, and the others in the Puget Sound area are 30 feet.

Friday Harbor is located on San Jaun Island, and that harbor is the customs port of entry for that area. It is largely dependent on navigation for its access and its economy.

As to Grays Harbor and Chehalis River, the consideration of that harbor is for fishing craft; that is for improvement of the entrance, for the protection of the fishing craft entering or leaving the harbor.

As to Tacoma Harbor the 1954 Rivers and Harbors Act authorized improvement for a deep-draft harbor. In connection with the deep-draft harbor at the Tacoma area there is a desire for a small craft harbor largely for fishing craft. The money requested for 1956 would continue the work on the Tacoma Harbor study.

I might add that on the first three investigations, the money requested for 1956 would complete the studies.

The one for flood control on Cedar River, has to do with flood damages in the area along the Cedar River in Renton, Wash. Located in that area are developments by the Boeing Aircraft Co., large steel-fabricating plants, and other plants and industries which are engaged in defense production.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. The next item is "Advance engineering and design."

On advance engineering and design, Mr. Reporter, insert in the record the usual tabulation.

(The matter referred to is as follows:)

Advance Engineering and Design

Funds in the amount of $50,000 will be applied to advance engineering and design of one navigation project in the North Pacific drainage area, the total estimated cost of which is $3,470,000. The planning will be brought to a stage where construction can be initiated.

Project	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects, Washington: Shilshole Bay	3,470,000	----------	50,000	[1] 3,420,000
Flood control projects: None.				
Multiple-purpose projects including power: None.				
Reexamination of projects in "Deferred for Restudy" category: None.				
Grand total advance engineering and design	3,470,000	----------	50,000	3,420,000

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

Mr. Evins. Will you tell us what this project encompasses, Colonel?

Colonel Allen. The project for Shilshole Bay was authorized in the 1954 act and provides for the construction of a breakwater and for dredging an extension to an existing mooring basin and an entrance channel. The project will provide needed mooring area for vessels engaged in the lumbering industry and for fishing and recreational craft in the Port Washington-Seattle area.

The total Federal cost is estimated to be on the order of $3,500,000. The local contribution for this project is on the order of $2 million.

Construction, Corps of Engineers

Grays Harbor and Chehalis River, Wash.

Mr. Evins. Mr. Reporter, insert in the record at this point pages 5 and 6 of the justifications.

(The matter referred to is as follows:)

Grays Harbor and Chehalis River, Washington (Point Chehalis Protection and Bay City Channel) (Continuing)

Location: The project is located at Grays Harbor on the coast of Washington, 45 miles north of the Columbia River and 110 miles south of the Strait of Juan de Fuca.

Authorization: 1948 River and Harbor Act.

Benefit/cost ratio: 2.30 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$1,680,000	----------
Estimated local cash contributions	0	----------
Estimated project cost	1,680,000	----------
Appropriations to June 30, 1954	1,108,000	----------
Appropriations for fiscal year 1955	----------	----------
Appropriations to date	1,108,000	66
Appropriations requested for fiscal year 1956	120,000	73
Balance to complete after fiscal year 1956	452,000	----------

PHYSICAL DATA

Shore protection at Point Chehalis:
North shore:
Type: Rock revetment and groins.
Length in feet: 1,850.
West shore:
Type: Rock revetment.
Length in feet: 3,300.
Status (January 1, 1955):
Bay City channel: Complete.
Westhaven Cove breakwater: Complete.
Shore protection at Point Chehalis:
North shore: Complete.
West shore: 18 percent.
Bay City channels:
Length in miles: Approximately 1½.
Depth in feet: 14.
Width in feet: 100.
Westhaven Cove breakwater:
Type: Creosoted woodpile with rock reinforcement.
Length in feet: 1,300 (approximate).
Completion schedule: Shore protection, Point Chehalis: 1963 (work will be completed in usable 600-foot increments).

JUSTIFICATION

The port of Grays Harbor is a deepwater project serving the needs of seagoing commerce from Hoquiam and Aberdeen, Wash. In 1952, over 1,947,000 tons of commerce moved over this waterway, consisting principally of logs, lumber, woodpulp, wood products and petroleum products.

The town of Westhaven is situated at a small cove on the northeast part of Point Chehalis. The cove is the point of supply for commercial and fishing vessels and for the United States Coast Guard. Point Chehalis has been built up primarily from fine sand deposited by ocean and river currents. During recent years, the destruction of Point Chehalis, and the consequent loss of the Westhaven development, has been threatened through erosion. Although the north shore of Point Chehalis has been stabilized by the construction of protective works, the west shore has continued to recede until the Westhaven development is in imminent danger of being severely damaged during winter storms.

Fiscal year 1956: Construct 600 lineal feet of revetment along the west shore of Point Chehalis under a lump-sum contract. An appropriation of $120,000 is the minimum required in fiscal year 1956 to prevent possible breaching of the shore and destruction of harbor and other facilities at Westhaven.

COMPLETED MODIFICATIONS, GRAYS HARBOR AND CHEHALIS RIVER, WASH.

Work completed consists of a south jetty 13,734 feet long and a north jetty 16,000 feet long to secure the Grays Harbor entrance channel; and a channel 30 feet deep across the bar at the harbor entrance, extending to the port of Grays Harbor Commission terminal at Aberdeen, thence 26 feet deep to the Union Pacific Railroad bridge at Aberdeen, thence 18 feet deep to Cosmopolis, thence 12 feet deep to Montesano and a 12 feet turning basin at Montesano. The cost of this completed work is $2,842,000.

REMAINING AUTHORIZED MODIFICATIONS, GRAYS HARBOR AND CHEHALIS RIVER, WASH.

A modification in the 1954 River and Harbor Act provides for an extension and enlargement of the 30-foot-depth channel and a new turning basin at an estimated Federal cost of $435,000. No work has been done on this modification.

The 1954 River and Harbor Act also provides for construction of an additional breakwater 1,400 feet long southeasterly of the existing breakwater at Westhaven Cove at an estimated Federal cost of $329,000.

Mr. EVINS. For the Grays Harbor and Chehalis River project, Washington, the estimated Federal cost is $1,680,000. The appropriations to date have been $1,108,000, and the project is 66 percent complete.

The requested appropriation for the fiscal year 1956 is $120,000.

Colonel, give us a statement in justification of the needs for this fund and the progress that you are making.

Colonel ALLEN. The work proposed to be done with fiscal year 1956 funds is shown in red on the sketch at the bottom center of the page. That sketch can be oriented with the major sketch. By looking over to the left, you will see Westhaven Cove and Point Chehalis on a smaller scale.

The work proposed with 1956 funds is the continuation of a stone revetment to assist in the protection of Point Chehalis from erosion.

This project was authorized a number of years ago and includes a rock revetment extending from the end of the south jetty up to the tip of Point Chehalis.

The north shore of Point Chehalis has been stabilized and the construction of this rock revetment is necessary as a continuation of that same protective work.

Mr. EVINS. It is needed to complete that project?

Colonel ALLEN. Yes, sir.

EAGLE GORGE RESERVOIR, WASH.

Mr. EVINS. The Eagle Gorge Reservoir project is a new project. Mr. Reporter, insert pages 10 and 11 of the justifications into the record at this point.

(The matter referred to is as follows:)

EAGLE GORGE RESERVOIR, WASHINGTON (NEW)

Location: On the upper portion of the Green River, about 35 miles southeast of Seattle, Wash., and 6 miles upstream from the town of Kanaskat, Wash.
Authorization: 1950 Flood Control Act.
Benefit/cost ratio: 1.2 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$20,500,000	
Estimated local cash contributions	2,000,000	
Estimated project cost	22,500,000	
Appropriations to June 30, 1954	343,000	
Appropriations for fiscal year 1955	200,000	
Appropriations to date	543,000	3
Appropriations requested for fiscal year 1956	1,000,000	8
Balance to complete after fiscal year 1956	18,957,000	

PHYSICAL DATA

Dam:
Type: Rock-fill.
Height: 230 feet above bedrock.
Length: 500 feet (exclusive of spillway weir).
Spillway:
Type: Uncontrolled side channel with concrete weir.
Capacity: 155,000 cubic feet per second (spillway design flood).
Status (January 1, 1955): New start.
Reservoir capacity:
Conservation pool: 28,000 acre-feet.
Flood control and total capacity: 106,000 acre-feet.
Power installation: None.
Completion schedule:
Entire project: November 1959.
Relocation of Northern Pacific Railway: December 1957.
Effective flood storage: Winter season, 1959–60.

JUSTIFICATION

Eagle Gorge Reservoir is to control flooding of the lower Green River Valley, for protection of the suburban communities from Auburn to Renton, and the developed South Seattle industrial district in the vicinity of the Boeing Airplane Co. plants, and the majority of Seattle's heavy industries, warehouses, storage yards, and machinery servicing operations. Through control of floods of this area, Eagle Gorge project offers a significant and positive contribution to the Nation's defense potential and economic well-being by providing:

(*a*) Protection to avoid possible loss of life and substantial economic loss, such as has been experienced from the 29 floods occurring in this valley since November 1891. Estimated damage data are available on 3 floods occurring since 1931: $2,583,000 in December 1933, $2 million in December 1946, and $585,000 in February 1951.

(*b*) Freedom from flood interruption of rail and highway transportation for employees, materials, and products essential to existing and future defense industries.

(*c*) Flood protection for potential industrial sites in the logical area for the expansion and decentralization of Seattle's established industrial district. Local interests stress the scarcity of, and early need for, additional industrial sites for the Seattle area. To this end and in anticipation of early construction of Eagle Gorge Reservoir, local interests are actively planning to undertake considerable work downstream from the dam in the Duwamish Valley and in the Green River Valley below Auburn.

(*d*) Flood protection to 17,000 acres of rich agricultural valley land located about midway between the population centers of Tacoma and Seattle. Flood control will enhance agricultural productivity of this land until the time the land is needed for industrial locations.

Fiscal year 1956: The requested amount of $1 million plus a local contribution of $1,250,000 will be applied to:

Relocations	$1,495,000
Permanent operating equipment	5,000
Engineering and design	310,000
Supervision and administration	70,000
Construction facilities:	
Tacoma water supply protection	283,000
Construction access	77,000
Construction headquarters	10,000
Total	2,250,000

Mr. EVINS. The total estimated Federal cost of this project is $20,500,000. The appropriations to date have been $543,000. You are asking for $1 million for this new project for 1956.

Colonel, tell us about this project, why it is needed, and justify the request for the funds.

Colonel STARBIRD. The project was authorized by the Flood Control Act of 1950. It is needed to protect three urban areas, namely, the city of Renton, the city of Auburn, and a portion of the city of Seattle along the Green River in the State of Washington and certain agricultural acreage. They have had a history of repeated and relatively heavy flood damage.

The project requires the contribution of $2 million from local interests. That money is available. $1,500,000 has been appropriated by the State and $500,000 has been budgeted by the county.

We plan on using $1,250,000 of that money during the first year of construction.

The funds recommended in this request, $1 million, together with contributed funds in the amount of $1,250,000 would be used in large part to initiate the relocation of the Northern Pacific Railroad, which now runs through the dam site.

Some $283,000 would be used to initiate cooperative arrangements with the city of Tacoma for the protection of that city's water supply.

This latter planned expenditure is a change, incidentally, in our plans from last year in the sense that up until last year we intended to protect Tacoma's water supply by controlling the contractor's operations.

We now intend to engage in this cooperative arrangement with the city. This agreement is estimated to cost approximately $450,000. Under it we shall reimburse the city for additional costs, involved in advancing the date of their construction of an additional water supply reservoir and our using as necessary their overall facilities for supplemental supply during construction to remedy constructon's detrimental effects. This will result in a more economical solution to this problem.

Mr. EVINS. I judge from your statement that you are satisfied that with good engineering you are solving the problem by building this dam for the prevention of flood damage?

Colonel STARBIRD. We think we have a very good engineering solution for it. We have had a change also in plans since last year in the type of dam, but we are convinced that the present plan is correct.

Mr. HAND. I notice in your justification that the benefit-cost ratio is 1.2 to 1. Is that the latest estimate?

Colonel STARBIRD. That is the latest estimate, yes, sir.

Mr. HAND. What are the cities that are protected by this project?

Colonel STARBIRD. The cities of Auburn, Renton, and a portion of Seattle.

In addition there are some 17,000 acres of agricultural land in the 35-mile reach of the valley between the dam and Seattle which will be protected by the project.

Mr. HAND. How many acres?

Colonel STARBIRD. Around 17,000, sir.

Mr. HAND. Has this agricultural land suffered extensively?

Colonel STARBIRD. Yes, it has suffered extensively The city of Seattle, incidentally, is planning on its own to develop the lower channel partially for navigation, and partially for flood control and drainage at an estimated cost of around $8 million.

Mr. HAND. That is in addition to any local contributions involved in this project?

Colonel STARBIRD. Yes, sir; that is correct.

Mr. HAND. How large are the cities of Auburn and Renton?

Colonel STARBIRD. Renton has a population of approximately 17,000. Auburn's population is in the neighborhood of 7,000.

Mr. HAND. What is the basis for the local cash contribution required in this project?

Colonel STARBIRD. It was arrived at prior to the time of the authorization. The authorization specified the $2 million local contribution. It was a contribution because of the enhancement which would occur. Negotiations were engaged in during the survey stage and an agreement was worked out between the district engineer and the local people to represent a fair contribution considering the enhancement involved.

Mr. HAND. The enhancement of what, Colonel?

Colonel STARBIRD. The land enhancement, sir.

The city of Seattle will expand into some of these agricultural areas as a result of the flood protection which will be given by this project.

Mr. HAND. If the appropriations requested this year were allowed, your present estimate is that it will require an additional $18,957,000 to complete the project?

Colonel STARBIRD. That is correct, sir.

Mr. EVINS. Colonel, do you have an agreement with the railroads on these plans for relocation?

Colonel STARBIRD. We have a tentative agreement with them. A second draft of the contract will go to the railroad within about one week.

Mr. EVINS. You do not contemplate too much difficulty with that?

Colonel STARBIRD. We believe that we will have no difficulties.

SUMMARY OF CONSTRUCTION PROGRAM

Mr. EVINS. Since this is a new project I am requesting that pages 12 and 13 of the justifications, the itemized breakdown of the cost of the dam and reservoir, be included in the record at this point.

(The matter referred to is as follows:)

EAGLE GORGE RESERVOIR, WASH.

Summary, construction program (PB–1), fiscal years 1955–56

Feature	Project cost estimate	Total to June 30, 1954	Current, fiscal year 1955	Budget, fiscal year 1956	Balance to complete after fiscal year 1956
(1)	(2)	(3)	(4)	(5)	(6)
Lands and damages	$362,200				$362,200
Relocations	12,582,200			$1,495,000	11,087,200
Reservoir	421,000				421,000
Dam	6,225,000				6,225,000
Roads	168,900				168,900
Buildings, grounds, and utilities	101,200				101,200
Permanent operating equipment	73,500			5,000	68,500
Engineering and design	920,000	$325,900	$258,300	310,000	25,800
Supervision and administration	1,089,500	12,000	12,000	70,000	995,500
Distributive costs:					
Construction facilities:					
Tacoma water supply protection	439,500			283,000	156,500
Construction access and headquarters	117,000			87,000	30,000
Operating and maintenance expense during construction					
Total project costs	22,500,000	337,900	270,300	2,250,000	19,641,800
Unliquidated obligations		5,200	−5,200		
Total obligations		343,100	265,100	2,250,000	19,641,800
Method of financing:					
Appropriations		343,200	200,000	1,000,000	
Borrowed or loaned			65,000		−65,000
Unobligated carryover from prior year			100		
Total funds available for obligation		343,200	265,100	2,250,000	
Funds required				2,250,000	19,641,800
Local contributions	2,000,000			1,250,000	750,000
Appropriations required				1,000,000	18,891,800
Memorandum—Application of contributed funds:					
Relocation:					
Northern Pacific Ry	1,655,000			905,000	750,000
Pacific Telephone & Telegraph Co.	25,000			25,000	
Construction facilities	270,000			270,000	
Supervision and administration	50,000			50,000	
Total costs	2,000,000			1,250,000	750,000

Operation and Maintenance, Corps of Engineers

Mr. Evins. For operation and maintenance the total amount requested for 1956 is $3,173,000.

Mr. Reporter, we will insert in the record at this point pages 16, 17, and 18 of the justifications.

(The matter referred to is as follows:)

North Pacific Basin—Justification of Estimate

Operations and Maintenance, General, Fiscal Year 1956

1. Navigation

(*a*) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels and harbors of coastal harbors and waterways by means of dredging, snagging, and repairing harbor jetties and breakwaters; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $2,666,000 for fiscal year 1956 is required for essential maintenance work on 10 channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis and determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly structural repairs and the maintenance of moderate and shallow-draft navigation channels. This condition continues to exist.

Project and tentative allocation fiscal year 1956

	Amount
California: Crescent City Harbor	$250, 000
Oregon:	
Coos Bay	620, 000
Coquille River	130, 000
Umpqua River	160, 000
Yaquina Bay and Harbor	810, 000
Washington:	
Everett Harbor	70, 000
Grays Harbor and Chehalis River	300, 000
Lake Crockett	50, 000
Puget Sound and tributaries	100, 000
Willapa River and Harbor	150, 000
Condition surveys	26, 000
Total channels and harbors	2, 666, 000

(*b*) *Locks, dams, reservoirs, and canals.*—The Lake Washington ship canal is a major waterway of the North Pacific Basin, transporting more than 2 million tons of commerce annually. The amount requested in fiscal year 1956 is approximately $70,000 more than the amount available in fiscal year 1955. This increase is due to additional general rehabilitation work.

	Amount
Washington: Lake Washington ship canal	$430, 000
Total navigation	3, 096, 000

2. Flood control

(*a*) *Reservoirs.*—The budget estimate of $71,000 provides for the operation and ordinary maintenance of 1 flood control reservoir in the North Pacific Basin during fiscal year 1956, and scheduling of flood control reservoir operation. The amount requested in fiscal year 1956 is approximately $3,000 more than the amount available in fiscal year 1955, and is considered the minimum necessary for adequate operation, nondeferrable rehabilitation and maintenance of the project.

PROJECT AND TENTATIVE ALLOCATION, FISCAL YEAR 1956

Washington:	Amount
Mud Mountain Reservoir	$70,000
Scheduling of flood control reservoir operation	1,000
Total flood control reservoirs	71,000

(*b*) *Other (including channel improvement projects, miscellaneous maintenance items and inspections).*—The budget estimate of $6,000 provides for initiation of bank stabilization rehabilitation late in the fiscal year on the Stillaguamish River and for inspection of completed works during fiscal year 1956.

Washington:	Amount
Stillaguamish River	$4,000
Inspection of completed works	2,000
Total flood control, other	6,000
Total flood control	77,000
Grand total North Pacific Basin	3,173,000

YAQUINA BAY AND HARBOR

Mr. EVINS. Tell us about the work that you plan to do, or want to do, on Yaquina Bay and Harbor.

Colonel POWERS. Yaquina Harbor is protected by two jetties, the north jetty and the south jetty.

Last year, by supplemental appropriation, Congress authorized us to proceed with the repair of the north jetty, and we estimated it to cost $1,200,000. We have initiated the work on that, awarding a continuing contract last month, and the work is presently scheduled to be accomplished during two working seasons from May to October in 1955, and from May to October in 1956.

The total estimated cost of doing the work is reduced now by $350,000 from our originally estimated $1,200,000 because of the favorable bids which have been received on the work.

Mr. EVINS. This operation and maintenance work covers portions of California, Oregon, and Washington?

Colonel POWERS. That is correct, sir.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Mr. EVINS. For general investigations for the North Pacific Basin the Bureau of Reclamation is requesting for next year $158,442. We will insert pages BR–1–3, 7, and 8 in the record.

GENERAL INVESTIGATIONS

Allocation of appropriations, fiscal year 1955		$163,450
Contributions		10,000
Total obligations, fiscal year 1955		173,450
Estimated allocation of appropriations, fiscal year 1956	$158,442	
Total obligations, fiscal year 1956		158,442

Description

The appropriation of general investigations funds for the North Pacific Basin provides for the planning of the basin and project developments of the Bureau of Reclamation for the utilization of the water resources of that basin.

The program of general investigations may include:

(1) Engineering and economic investigations to determine the feasibility of potential reclamation projects. These investigations may consist of reconnaissance surveys to establish with a minimum of time and funds, the justification for further detailed study; basin surveys to establish basinwide plans, or detailed studies of the feasibility of specific projects;

(2) Advance planning to prepare newly authorized projects for construction;

(3) Investigations of existing projects necessary for rehabilitation, financial adjustments, or water conservation.

In the past, the general investigations program included, where appropriate, small allowances for necessary transfers of funds or reimbursements to other agencies, such as the Geological Survey, Fish and Wildlife Service, National Park Service, Weather Bureau, Coast and Geodetic Survey, Department of Agriculture, etc., for work over and above their regular programs which those agencies perform in connection with the Bureau's investigations of specific potential projects and which these other agencies are better equipped to do. The request for fiscal year 1956 includes funds for this same purpose and, in addition, it includes for the first time a request for funds for transfer to the Fish and Wildlife Service for basinwide studies of that agency in connection with basin investigations by the Bureau of Reclamation where such investigations are underway.

Work underway and proposed

The general investigation program for the current fiscal year in the North Pacific Basin is $173,450, which is financed with appropriated funds in the amount of $163,450 and contributions of $10,000. With these funds, planning activities will be underway on a total of three investigations. Of this total, two will be a continuation of studies underway at the beginning of the fiscal year and one will be an investigation being initiated.

The request of $158,442 for fiscal year 1956 for this basin will be utilized for planning activities on a total of three investigations, all of which will be continuations of prior year investigations. Of the total, one will be completed in fiscal year 1956. The activity breakdown of work proposed in fiscal year 1956 compared with the program for fiscal year 1955 is shown in the following "Summary of activities," and the details of the program proposed is presented in the accompanying tabulation entitled "Schedule of general investigations program, fiscal years 1955 and 1956."

SUMMARY BY ACTIVITIES—NORTH PACIFIC BASIN

Estimated costs of investigations in the current program

Activity	Estimated total	Total, June 30, 1954	Program, fiscal year 1955	Program, fiscal year 1956	Balance to complete
Engineering and economic investigations	$1,516,712	$984,473	$97,950	$128,442	$305,847
Advance planning	114,500		84,500	30,000	
Total cost	1,631,212	984,473	182,450	158,442	305,847
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.			−9,000		
Total obligation program			173,450		
Less unobligated carryover and funds advanced			−10,000		
Allocations or estimate			163,450	158,442	

Schedule of general investigations program, fiscal years 1955 and 1956, North Pacific Basin

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations:							
Basin surveys: Region 1: Umpqua River Basin.	Oregon	$150,000	$7,998	$31,180	$54,500	$56,322	Studies should be made to determine potential irrigation and power development in this basin. There are 15,000 acres of inadequately irrigated land and about 60,000 acres of new land susceptible to irrigation in the basin.
Project investigations: Region 1: Rogue River Basin project.	do	1,366,712	976,475	66,770	73,942	249,525	Bureau of Reclamation's Rogue River Basin project report completed in 1950 but because other agencies had not completed their analysis was used only as a reference for subsequent studies. In 1952 agreement was reached on acceptable projects in the basin for which feasibility investigations were requested. Report on Talent division was completed in fiscal year 1954; work on Illinois Valley division now in progress will be completed in 1956. Work on the Merlin division was deferred in fiscal year 1954 but should be resumed again in fiscal year 1956 as well as additional work. Work on remaining divisions should be deferred until needs of the area require additional irrigation.
Total, engineering and economic investigations.		1,516,712	984,473	97,950	128,442	305,847	
Advance planning: Region 1: Rogue River Basin project, Talent division.	Oregon	[1] 114,500	(1)	84,500	30,000		Project authorized in August 1954. Construction would provide urgently needed supplemental water to lands within Talent division which are inadequately irrigated at present, particularly those within Talent Irrigation District, and to provide a full supply to dry lands. In addition, a supply of water will be furnished on an interim basis to Medford and Rogue River Valley Irrigation Districts, which presently suffer shortage, until other sources of supply can be developed. Additional storage would be provided by construction of Howard Prairie Dam and Reservoir. Hydroelectric power would be developed at the Green Spring powerplant. Although some of the development proposals for Rogue River Basin project have been controversial, interest by local people in this development is great.
Total cost		1,631,212	984,473	182,450	158,442	305,847	
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.				−9,000			

Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.				−9,000			
Total obligations				173,450	158,442		
Method of financing:							
Allocation of appropriation				163,450			
Prior year balance available							
Contributions				10,000			
Allocation of appropriation requirements.					158,442		

Mr. EVINS. Will you make a statement, Mr. Nelson, in justification of the amount requested for general investigations?

Mr. NELSON. I will take a moment to point out the area covered by the investigations involved. For the fiscal year 1956 it will include a basin survey [indicating], the Umpqua River Basin, and a rehabilitation program, project investigation, and advance planning program in the upper Rogue River Basin. Those are the items which will comprise the Bureau of Reclamation program for the fiscal year 1956 in the North Pacific drainage area.

For fiscal year 1956, $158,442 is requested to be utilized for the "General investigations" activity in the North Pacific Basin.

The funds now scheduled for this basin will provide for a continuation of a basin survey in the Umpqua River Basin to determine the possibility of serving some 15,000 acres of land now inadequately irrigated and about 60,000 acres of new land.

In addition to that, feasibility studies will continue on the Illinois Valley and Merlin divisions of the Rogue River Basin project.

Advance planning activities will be completed on the authorized Talent division of this same project in anticipation of a construction start in the fiscal year 1957. That is the project with the 16,000-kilowatt powerplant.

The western Oregon area in which the Umpqua River Basin is located has increased quite spectacularly in population in the last decade and has outstripped resource development. During a period when prices are depressed, unemployment becomes a major problem inasmuch as industry is based primarily on lumbering and associated activities.

An inventory of land and water resources of the Umpqua River Basin, as well as other phases of the economic picture, is needed to evaluate the overall possibilities of the region, with the objective of placing less dependence on one basic industry.

Local interest has been evident over the past few years for irrigation development, power generation, and flood control.

The need for the Umpqua River Basin investigation was considered so urgent by the local people that the State legislature and Douglas County each advanced funds to expedite the Bureau of Reclamation program. The basin investigation which will provide a basic evaluation of resources and indicate potential project developments is being coordinated with State and local interests.

ROGUE RIVER BASIN

Now, a somewhat similar situation exists in the Rogue River Basin. The population is largely dependent for a livelihood upon farming and timber resources of the basin, and population growth has within the past decade outstripped a balanced resource development which will maintain the economy over any considerable length of time.

Also, demands of the expanded population for farming opportunities have been met by continuing subdivision of farm holdings, with the attendant result, under the stimulus of attractive sales prices, that large numbers of units have been reduced to an uneconomic size.

Aggregate peak-power requirements of the principal distributor in the area grew from approximately 45,000 kilowatts in 1940 to 143,000 kilowatts in 1948, and there is every indication that the demand for power will continue to increase in the future.

Flood control is urgently needed along a highly developed 90-mile reach of the Rogue River in the Central Valley segment where the flood damage has been particularly great, and, without control, will continue to be heavy.

TALENT DIVISION

The Talent division of this project has been authorized and is awaiting appropriation of construction funds. Planning on the remaining divisions should continue as now scheduled.

Mr. EVINS. Mr. Nelson, should the committee approve funds for this purpose would you be able to satisfy the people and the legislatures out your way?

Mr. NELSON. Yes, sir; we are confident that we can.

I was going to say that the advance planning item for $30,000 will prepare for construction the Talent division which was authorized last year. I might add that the repayment contract is now in the hands of the people of the area, and we expect that to be executed without difficulty.

Mr. EVINS. Tell us a little about the progress on the Talent division. It has been authorized. Has all your difficulty been settled in connection with that project?

Mr. NELSON. That is right, sir. We are working out design estimates, an advance planning report, and a repayment contract.

Mr. EVINS. You anticipate developing power in that project?

Mr. NELSON. Yes, sir.

Mr. EVINS. When do you plan getting that construction underway?

Mr. NELSON. As soon as construction funds become available to us, sir.

Mr. HAND. What are you planning here, generally speaking?

Mr. NELSON. The basin investigation report in the Umpqua River Basin will be a basinwide report, which will inventory land and water resources, and the possibilities for their development. That report will not be a feasibility type of report. It will be a specific inventory of the possibilities of the area, available for the use of the people of the area and the Congress in determining any future project possibilities.

The project type investigations underway are confined to the Illinois Valley and the Merlin divisions of the Rogue River Basin project. That is in the Rogue River Basin.

Those two reports will be feasibility type reports and cost estimates and will report on the costs of irrigating about 28,000 acres of new lands, and 6,000 acres that now require supplemental water, and there is a possibility of some power being developed associated with that irrigation development.

Mr. HAND. You are not far enough along in that to say whether that is more than a possibility?

Mr. NELSON. No, sir.

Mr. HAND. How about the situation of the local power companies which are now operating there, are they not planning to take care of their future needs?

Mr. NELSON. I believe that they are developing all that they can, and they have indicated a positive interest in anything that can be developed in connection with irrigation development.

Mr. HAND. The power companies have?

Mr. NELSON. Yes, sir.

Mr. HAND. What are the principal companies operating there?

Mr. NELSON. The California-Oregon Power Co. is the principal one.

Mr. HAND. The California-Oregon Power Co.?

Mr. NELSON. Yes, sir. We have a good offer for the entire output.

Mr. HAND. From the power company?

Mr. NELSON. Yes, sir.

Mr. HAND. You have indicated that local interests, that is, that the State and county, made some contribution to the planning funds in connection with the Umpqua project?

Mr. NELSON. Yes, sir.

Mr. HAND. How much of a contribution was that?

Mr. NELSON. $10,000.

Mr. HAND. That is all; thank you.

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS, BUREAU OF RECLAMATION

Mr. EVINS. We will insert page BR–315 in the record at this point.

CONSTRUCTION AND REHABILITATION

Rehabilitation and betterment of existing projects—North Pacific Basin, fiscal year 1956

Obligations program	$350,000
Appropriation request	350,000

On irrigation projects which have been in operation for a considerable period, the water storage and conveyance facilities have frequently exceeded their useful life and require excessive maintenance programs to continue operations. These deteriorated and obsolete facilities often result in inefficient use and loss of valuable irrigation water. The rehabilitation and betterment program provides for restoring such facilities to a satisfactory operating condition. Work under this program was authorized by the act of October 7, 1949, as amended by the act of March 3, 1950.

During fiscal year 1956 rehabilitation and betterment work in the North Pacific Basin will be confined to the Rogue River Basin project. Scheduled activities on this project will provide for the initiation of work necessary to rehabilitate the joint-and-single-purpose facilities of the Medford and Rogue River Valley Irrigation Districts. Work on the joint-use facilities consisting of the Four Mile Dam, Fish Lake Dam, and the Main Canal will be started and completed during the year, with the exception of the Main Canal which will not be completed until the spring of 1957. Work on the single-purpose facilities which are the Medford and Hopkins Canals will be started. The Hopkins Canal work will be completed within the year. The Medford Canal work will not be completed until the spring of 1957. Work on the distribution systems of the Medford and Rogue River Valley Irrigation Districts will also be started.

THURSDAY, APRIL 21, 1955.

COLUMBIA RIVER BASIN

WITNESSES

CORPS OF ENGINEERS

COL. WILLIAM WHIPPLE, EXECUTIVE FOR CIVIL WORKS, OFFICE OF THE CHIEF OF ENGINEERS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL
COL. W. F. POWERS, CHIEF, OPERATIONS DIVISION, CIVIL WORKS
B. JOSEPH TOFANI, CHIEF, PROGRAM BRANCH, OFFICE OF THE CHIEF OF ENGINEERS
HARRY COHEN, ASSISTANT CHIEF, PROGRAM BRANCH
C. M. CONWAY, PLANNING AND DEVELOPMENT DIVISION, OFFICE OF THE CHIEF OF ENGINEERS

DEPARTMENT OF INTERIOR

W. A. DEXHEIMER, COMMISSIONER OF RECLAMATION
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER OF RECLAMATION
DR. WILLIAM A. PEARL, ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION
H. T. NELSON, REGIONAL DIRECTOR, BUREAU OF RECLAMATION

Mr. EVINS. We will take up the Columbia River Basin this morning, and at the outset I want to compliment the Corps of Engineers and also the officials of the Bureau of Reclamation in the compilation of this justification, and particularly the district engineer of the Walla Walla district and the district engineers of the Portland district and the Seattle district, and all of you who have had a part in the preparation of this justification. It is comprehensive and well documented.

Mr. Reporter, insert in the record at this point the summary statement and other fiscal data.

(The matter referred to is as follows:)

Columbia Basin

Appropriation	Corps of Engineers	Department of the Interior		
		Reclamation	Bonneville Power	Total
General investigations	$80,000	$978,558		$978,558
Advance engineering and design	880,000			
Construction	95,400,000	28,752,000	$16,456,000	45,208,000
Operation and maintenance	8,083,000	5,711,000	6,650,000	12,361,000
Total	104,443,000	35,441,558	23,106,000	58,547,558

CORPS OF ENGINEERS

Columbia River Basin

Project	June 30, 1954		Mar. 31, 1955		June 30, 1955 (estimate)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Flood control:						
Portneuf River and Marsh Creek	0	0	0	0	0	0
Lucky Peak Reservoir	$314,553	$419,414	[1] $343,632	[1] $429,710	[1] $280,000	[1] $310,000
Willamette River bank protection	0	12,439	38,079	38,439	0	0
Multiple purpose:						
Lookout Point Reservoir	3,593,476	5,411,281	[2] 1,127,360	[2] 1,498,851	[2] 0	[2] 0
McNary Lock and dam	−2,645,364	−2,978,542	[4] 926,775	[4] 4,290,235	[5] 0	[5] 200,000
The Dalles Dam	15,494,537	18,552,588	1,690,849	9,024,484	[6] 0	[6] 500,000
Chief Joseph Dam	−6,400,000	−6,273,531	[7] 990,658	[7] 3,150,589	[7] 0	[7] 0

(Negative amounts from adjustment of the unobligated and unexpended balance to reflect loans made during the fiscal year.)

[1] Excludes $210,000 loaned to other projects.
[2] Excludes $1,990,000 loaned to other projects.
[3] Excludes $2,260,000 loaned to other projects.
[4] Includes $1,873,000 loaned to project.
[5] Includes $3,473,000 loaned to project.
[6] Includes $6,500,000 loaned to project.
[7] Includes $4,800,000 loaned to project.

BUREAU OF RECLAMATION

Construction and rehabilitation—Actual unobligated balances June 30, 1954, and March 31, 1955, and estimated June 30, 1955—Columbia Basin

Project	Actual unobligated balance June 30, 1954	Actual unobligated balance Mar. 31, 1955	Estimated unobligated balance June 30, 1955		
			Field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Minidoka, north side pumping, Idaho	$25,000	$443,935			
Palisades, Idaho	2,000	739,542	$50,000	$250,000	$300,000
Deschutes, north unit, Oregon	31,281	18,701			
Columbia Basin, Wash	233,000	1,801,766		150,000	150,000
Yakima, Kennewick division, Washington	96,139	564,929			
Yakima, Roza division, Washington	4,792	66,108	48,000		48,000
Drainage and minor construction	575,150	314,084	61,000	37,928	98,928
Rehabilitation and betterment	2,185	75,139	26,000	2,154	28,154
Total, Columbia Basin	969,547	4,024,204	185,000	440,082	625,082

Mr. EVINS. It is noted that $104,443,000 is requested by the Corps of Engineers; the Bureau of Reclamation, $35,441,558; and the Bonneville Power Administration $23,106,000, the three of them totaling $162,990,558.

Colonel Whipple, will you discuss briefly the water resources and the power facilities of the Columbia Basin, and make a general statement for the committee?

GENERAL STATEMENT

Colonel WHIPPLE. The Columbia River rises in British Columbia and enters the United States near the northeastern corner of Washington. In its remaining course of 745 miles, it flows southward

across this State to the Washington-Oregon State line, thence generally westward, forming the State boundary to its mouth at the Pacific Ocean. The river and its tributaries drain an area of 259,000 square miles, of which about 39,500 square miles lie in Canada. Although the region is essentially agricultural in character, lumbering, mining, and expansion of the light metals industry in the basin has resulted in material industrial development in recent years. Navigation on the Columbia River has always been an important element in the basin economy. East of the Cascade Range and on the main stem Columbia River, damaging floods occur in the late spring primarily from the rapid melting of winter snow accumulations in the mountains. On tributaries west of this range, floods generally occur in the winter due to heavy rainfall and melting snow. East of the Cascade Range there is a deficiency of rainfall over extensive areas of arable land making irrigation necessary. Irrigated agriculture is an important mainstay of the basin. Several million acres throughout the basin are adaptable to irrigation but produce only scanty wheat or sparse grazing under dryland conditions. Continued population and industrial growth in the Pacific Northwest, as elsewhere, requires ever-increasing supplies of electric power to meet its needs. Due to a lack of natural fuels, the Pacific Northwest is primarily dependent upon hydroelectric development for its power supply; and supplying these power needs is undoubtedly the primary water resource problem of the Columbia Basin. Due to the assurance with which the runoff of the Columbia River and its tributaries can be predicted each spring, it is possible to serve the principal needs of irrigation, navigation, flood control, and power without serious water-use conflict.

An important commercial and sport fishery is primarily dependent upon runs of salmon and other anadromous fish which have their natural spawning areas in the upper reaches of the Columbia River and tributaries. Adequate provisions for this fishery resource and for wildlife conservation, recreation, domestic water supply, and abatement of pollution are important considerations in the planning of water-use developments.

The Columbia Basin is unique in the magnitude and economy of its potential water resource developments, and the critical importance of these developments to the people and to the general economic development of the area. It is also outstanding in the extent to which comprehensive basin plans have been worked out by the agencies primarily concerned to delineate the basic structure of an engineering plan. The comprehensive basin plan, which has been almost universally accepted, envisages a primary group of major projects called the main control plan, which will provide main-stem flood control, most of the power output of the basin, main-stem navigation, and (mainly from Grand Coulee) a major irrigation development. Plans for important subbasins such as the Willamette, Boise, upper Snake, and Payette will provide a great part of the basin's irrigation potential, valuable tributary flood control, and smaller hydroelectric power projects. These tributary plans contribute importantly to regional development, but they can be constructed and operated primarily in the interests of the State and locality concerned, without interfering unduly with the main control plan or the needs of localities downstream.

NAVIGATION

The authorized navigation program for the Columbia River Basin provides for a deep-draft seagoing commerce on the lower Columbia and Willamette Rivers to The Dalles and Portland, Oreg., and for barge transportation upstream from these points. On the Willamette River the authorized navigation project for barge and log raft traffic extends above Portland to Corvallis with snagging and clearing as necessary further to Harrisburg. On the Columbia River, barge navigation will be provided for by slack water improvement through dams on the Main Control Plan and channel improvement as necessary, above The Dalles to Snake River and thence up the Snake to Lewiston, Idaho, which is 464 miles from the sea. The Portland area constitutes one of the primary seaports of the United States, with annual traffic of over 18 million tons in 1953. The Willamette River handled over 4 million tons of traffic, largely wood products, the same year, and the Columbia River above Portland, although the improvement is still not complete, handled 1,300,000 tons, largely of grain, petroleum products, and building materials. This traffic, which extends upstream to Pasco, Wash., has now been stimulated by the raising of the pool of the McNary project, and remaining shoals and bottlenecks will be obviated by completion of The Dalles and John Day projects.

Further extension upstream from Pasco, Wash. into Idaho will require additional dams on the lower Snake, although they are actually going to run a few barges up that river this summer.

FLOOD CONTROL

Authorized plans for flood control on the Columbia River Basin include the large multiple-purpose reservoirs of the main control plan, which will be operated as a coordinated system, in conjunction with lower Columbia River levees, to control main Columbia River floods to minor damage proportions. The disastrous flood of 1948 highlighted the need for such a plan as a primary requirement of basin development. In addition to projects of the Corps of Engineers, this plan requires operation of Grand Coulee and Hungry Horse Dams of the Bureau of Reclamation in the interest of flood control, as well as in their primary interests of irrigation and power. A total flood control storage of from 20 million to 27 million acre-feet, depending on the location of individual reservoirs, has been determined as necessary to meet the requirements of the main control plan. Of this amount only 7,070,000 acre-feet, or from 26 to 35 percent, has been made available to date. It is possible that some of this storage can most feasibly be provided in Canada. The system of levees on the lower Columbia River has not yet been raised and extended in accordance with the plan.

Excellent progress has been made on flood control in connection with developments on some of the tributary plans, particularly in the Willamette and Boise basins. However, a great deal of work on localized flood problems remains to be done. The Pocatello unit of the Portneuf River and Marsh Creek local flood control project is scheduled as a new start in the construction program for fiscal year 1956.

POWER

With population increasing rapidly, peak powerloads in the Pacific Northwest grew to about 7,143,000 kilowatts in 1953, having almost doubled in the preceding 6 years. Minimum powerload requirements are expected to reach 13,545,000 kilowatts by 1963–64. In connection with the system operation of Corps of Engineers multiple-purpose reservoirs in the Columbia River Basin, installed generating capacities of 7,720,000 kilowatts have been authorized. In addition, the Grand Coulee and Hungry Horse projects have an aggregate installed capacity of 2,229,000 kilowatts. Smaller but still appreciable power programs are under construction or planned by private companies and State and municipal power agencies. Special mention should be made of the Priest Rapids project, planned with 1,219,000 kilowatts capacity, construction of which by a partnership arrangement was authorized in 1954.

Federal hydroelectric developments, including installations made to date at Bonneville and McNary Dams on the lower Columbia River, Lookout Point, Dexter, Detroit, and Big Cliff Dams in the Willamette River Basin have been completed by the Corps of Engineers and Grand Coulee and Hungry Horse Dams by the Bureau of Reclamation, provide a total installed Federal capacity of 3,383,000 kilowatts.

That is just slightly under half of the total installed electric capacity in the basin, including all sources.

The remainder of the presently authorized hydroelectric program for the Corps of Engineers not yet initiated includes installations at the Libby Dam in the Kootenai River Basin; the four lower Snake River Dams; John Day Dam on the lower Columbia River; and Hills Creek, Cougar, Green Peter-Whitebridge Dams in the Willamette River Basin. The Bureau of Reclamation has a small plant on the Roza division of the Yakima project not yet initiated.

Hydroelectric installations at the Albeni Falls, McNary, Chief Joseph, and The Dalles Dams are under construction by the Corps of Engineers. The Bureau of Reclamation has under way the Palisades plant in Idaho and the Chandler plant on the Yakima project in Washington. By January 1, 1959, 2,326,000 kilowatts of additional generating capacity is scheduled to be in service, in accordance with schedules currently before the committee.

No new starts involving hydroelectric installations are proposed in fiscal year 1956.

Plans have been developed jointly by the Corps of Engineers and the Bureau of Reclamation for four more large multiple-purpose dams in the middle Snake area, to replace other less feasible storage proposals as a part of the main control plan. These are Bruce Eddy and Penny Cliffs for the corps, and Mountain Sheep and Pleasant Valley for the Bureau. These projects have not yet been authorized.

The Bonneville Power Administration is responsible for the disposition of electric power produced by 12 Federal generating plants in service or under construction in the Pacific Northwest. To carry out this responsibility, it constructs and operates high-voltage electric power transmission facilities which integrate the Federal power projects, transmit the output of Federal powerplants to load centers and interconnect the Federal system with non-Federal utility systems

throughout the region. In addition, the Administration develops basic data relative to the long-term power demands of the region to provide a firm base for transmission planning and as a guide to the additional generation which will be needed.

The Administration's fiscal year 1956 construction program provides for the carrying on of construction required to carry to load centers the power production of the new Federal generating installations including those which are scheduled to be in operation by January 1959.

Certain cooperative arrangements dealing with power in the Pacific Northwest reflect the unique character of the regional development. All private, municipal, State, and Federal power agencies cooperate in an operating organization known as the Northwest power pool. This grouping, first organized as a defense measure during World War II, has been found indispensable, since the integration of operating arrangements, particularly in use of storage reservoirs and of steam plants, adds about 15 percent to the total electric load which could not otherwise be carried reliably by the same utilities operating separately.

IRRIGATION

Irrigation in the basin dates back over 100 years. Federal development began about 1903 and has been responsible for growth of important centers such as Boise, Idaho, and Yakima, Wash. The Deschutes and Owyhee projects in Oregon, and the Minidoka project in Idaho are other important Federal developments. Current construction by the Bureau of Reclamation consists of the Kennewick division of the Yakima project, now nearing completion; the North Side pumping division of the Minidoka project; and the huge Columbia Basin project, planned ultimately to irrigate 1 million acres in central Washington, by waters pumped from behind Grand Coulee Dam. The dam and primary irrigation works of this project are complete, and work continues on the canals, laterals, and irrigation areas with new land being rapidly placed in production.

The start of two new irrigation projects of the Bureau of Reclamation is proposed for fiscal year 1956, the Michaud Flats project of 11,000 acres in Idaho, and the 4,700-acre Foster Creek division to be served from the Chief Joseph Dam project of the Corps of Engineers in Washington. Funds for operation and maintenance of irrigation facilities are an important factor in this basin, with the needs increasing yearly as new acreage develops. While paid for annually by the water users, most of these funds must be first appropriated by Congress, pending the time when the water users are able to take over this function. There is further need for investigations and planning funds in large undeveloped areas and presently developed projects facing critical water shortages such as the Snake River project in Idaho and Oregon, and the Johnny Counts project in Idaho and Wyoming. In addition, much investigative work remains on subbasin surveys and the collection of basic engineering and economic data for future development. The ultimate irrigation development of the Columbia Basin is a large and long-range undertaking of great importance.

OTHER FUNCTIONS

Facilities for the preservation of the fishery resources of the Columbia River Basin form a part of every multiple-purpose project constructed on streams with anadromous fish runs. Where practicable, these facilities include fish ladders and appurtenant structures to aid the passage of fish at dams, and fish hatching and holding facilities at those structures which prohibit the passage of anadromous fish. Successful fish passage facilities have been completed at Bonneville and McNary Dams, and similar facilities are being provided at The Dalles. In the Willamette River Basin, fish hatcheries, and holding areas provide for preservation of the resource in that area. In addition, a program of stream improvement and hatchery construction to improve the fishery resource called the lower Columbia fisheries plan was recommended in the comprehensive plan of 1948, and is being carried on by the Fish and Wildlife Service. A fisheries research program designed to develop better and more economical means of passing fish both up and down stream past the dams, is being carried out cooperatively by the agencies concerned, both Federal and State. Most of these costs will be allocated to power and in course of time be paid for by power revenues. Completion of fish passing facilities, fish hatcheries, and other measures in connection with dams as now authorized is estimated to cost approximately $200 million.

Certain of the large multiple-purpose reservoirs of the Columbia River Basin, through the augmentation of low water flows, improve water supply and provide definite stream-pollution benefits as well as benefits to fish and wildlife.

Projects now complete and under construction provide initial steps in the comprehensive plan for maximum utilization of the water resources of the Columbia River Basin. Although completion of authorized projects discussed above will provide a major start for full basin development, the continued growth and industrial expansion in the Pacific Northwest will require still further protective works and water resource development projects to meet the flood-control needs, irrigation and hydroelectric requirements of the region. Existing and potential irrigation developments on a large scale are of major importance, especially for further development of the central and southeastern area. Existing power resources and those now under construction and definitely scheduled by the Federal Government and by non-Federal utilities are considered capable of meeting firm loads through 1959–60. Initiation of construction on 3 to 3½ million kilowatt of new installed hydromachine capacity between now and 1960 by either Government agencies or private capital will be necessary to assure the carrying of estimated firm loads for the periods 1960–61 through 1963–64 or slightly beyond that date. Accompanying this need for power is the pressing need for flood-control storage to relieve the threat of further disastrous floods throughout the basin. The most economical projects available are generally those of great size, most of which have multiple-purpose aspects. Both power and flood-control needs can be materially relieved and other important project purposes served by the early initiation and completion of projects now authorized but not started.

Mr. EVINS. Thank you, Colonel Whipple, for a very fine statement. In your remarks you state that the most economical projects available are generally those of great size. That is a question that is often debated, whether you should build a lot of low dams or a few high dams. Do you subscribe to the theory that the high dam is the most economical and serves the greatest needs?

Colonel WHIPPLE. I would not presume to express an opinion on the general theory, but in the Columbia Basin of the projects that we discussed, the major flood-control and power projects, the results of our planning indicates that the most economical projects available in this basin are the very large projects.

POWER REQUIREMENTS OF THE AREA

Mr. EVINS. I believe you answered one question that I had in mind in your concluding statement about the power needs to be taken care of there. You say the total installed Federal power capacity in the Columbia Basin is 3,383,000 kilowatts, and I believe you stated that represents about one-half of the power requirements at the present time and that the other one-half is being provided by private power in the area; is that correct?

Colonel WHIPPLE. Private, municipal, and State, sir.

Mr. EVINS. How much additional power capacity will be included upon completion of the projects which you have mentioned in your statement?

Colonel WHIPPLE. Sir, the projects presently underway will produce 2,326,000 kilowatts of additional power by January 1, 1959.

Mr. EVINS. Making about 6 million kilowatts.

Colonel WHIPPLE. That will virtually complete the present schedule. The figure I gave of additional installed capacity required is from additional projects which will have to be started by somebody, either Federal or non-Federal in order to meet these further additional needs.

COST ALLOCATIONS

Mr. EVINS. What progress have you made in developing firm cost allocations for the multiple-purpose projects in the area, particularly Albeni Falls, Chief Joseph, McNary, Lookout Point, and Detroit?

Colonel WHIPPLE. The McNary cost allocation has been firmed up and made by the Federal Power Commission which is given the authority in this connection. We have tentative cost allocations on all of these projects which, I believe, have been substantially accepted, although they have not been completed. Some of these are underway. Others are required to be made by the Federal Power Commission, but we work jointly with them in either event.

Mr. EVINS. You are getting along quite well, judging from your statement. You state that this cooperative arrangement is now considered to be indispensable.

Colonel WHIPPLE. Yes, sir. That is true in operations also, and specifically in cost allocation, where the agencies on the Washington level reached an agreement in March of last year, and we are now rapidly reconciling the remaining differences in cost allocation across the country.

Mr. EVINS. And the same situation applies to all of your multiple-purpose dam projects; you are not having any difficulty with any of them?

Colonel WHIPPLE. There are still some unsolved problems, but in the Pacific Northwest I know of no really difficult problems.

DEMAND FOR POWER GENERATED

Mr. EVINS. Are you satisfied as to the ability of the area to use all of the power to be generated in this specific area and use it as rapidly as you are able to put it on the line?

Colonel WHIPPLE. Yes, sir; and in fact these load-growth estimates are now fairly well accepted by the various agencies and companies concerned. We are skating on quite a narrow margin when the streamflow becomes a little lower than average, as was the case this spring. We ran short of power, and it has been necessary within the last month, or, approximately a month ago, to cut all of the large industrial customers served from the Federal plants by 35 percent of their power requirements until further notice because of the inability to meet the demands of the load growth of the area.

Mr. EVINS. Some of the partisans, or advocates of private power, often make the claim that there is more power being produced than is needed. They have indicated that this is particularly true with respect to Chief Joseph. It is your view that you are not producing enough power to meet the demand, and you have just said that you have to cut by 35 percent certain of the industrial load requirements.

Colonel WHIPPLE. Yes, sir; that is correct, sir, within the last month.

Mr. EVINS. Dr. Pearl, and Mr. Dexheimer, do those views more or less coincide with your views on the matter?

Dr. PEARL. Yes, they do. When Colonel Whipple said we cut by 35 percent the amount necessary to meet the requirements, if you are talking about the Columbia system we curtailed 75 percent on our interruptable industrial loads during the latter part of March and the first part of April because of the shortage of power in the area.

Our growth demand for power in the Northwest, if we assume that it will increase at the rate of 6½ percent over the next 5 years, will consume all of the power under construction and that which is coming on the line.

You will notice in his opening statement that Colonel Whipple said that the power demand has almost doubled in the last 6 years.

In making our estimates we assumed a more conservative figure, but even with this more conservative figure the demand will consume all of the power that is coming in now and that which is now under construction until 1960.

Mr. EVINS. It is your view, as head of the Bonneville Power Administration, that these claims that you are producing in excess of your needs are not accurate or justified?

Dr. PEARL. Not under the present program and the schedule that the Army engineers have prepared.

Mr. EVINS. It has been your experience that you have been using the power as rapidly as they are able to produce it all along?

Dr. PEARL. Yes, sir; that is correct.

Mr. EVINS. Mr. Dexheimer, do you have any comments on this?

Mr. DEXHEIMER. Mr. Chairman, the history of the Northwest and particularly other areas that have grown during the war period has been that industries have moved out into that general area. It has been a history of power shortage and continual brownouts, of cutting of industrial loads, and I think that the actions that have been taken not only by the Federal Government in trying to develop these power systems, but by all agencies, both public and private, in trying to push for additional power production has indicated that there is no difference of opinion that we probably cannot develop the power facilities fast enough to anticipate the anticipated growth. Several private power companies and public utility districts in this basin have filed with the Federal Power Commission applications for permits to develop some of these sites.

We made a study last year on Mountain Sheep and Pleasant Valley sites on the Snake River, and almost immediately when we got that study out a group of power companies filed with the Federal Power Commission for a permit to develop and study those sites.

Before I came back here I was doing consulting engineering for the city of Seattle, and they have spent upwards of $25 million to increase the power production from their Skagit River plants in the last 5 years, and they are continuing to do that, so I think there is no question and that there should be no disagreement in that area on the need for further power development.

Mr. EVINS. Is there fine cooperation at this time between the Federal power agencies and the private power interests?

Mr. DEXHEIMER. In that area, of course, they do pool practically all of the power, both public and private, which is developed and in that way they are able to get considerably more benefit from the power and coordinate it through the Northwest power pool, and that is a step that has caused other areas in the country to do likewise which because of the inability to get these power facilities have been unable to meet their growing loads.

INDUSTRIAL GROWTH AND POWER SUPPLY

Mr. HAND. Mr. Commissioner, which comes first, the power or the growth? In other words, how much of the growth can be attributed to the ample supply of Federal power here?

Mr. DEXHEIMER. I would say that the industrial growth is based on their analyzing the possibilities for industry in the area.

Perhaps we can illustrate that by the location of the aluminum industry in the Northwest which moved there and generally had moved into places where they could get relatively cheap power. In those cases they get more power and ship their raw material to those sites and develop aluminum in that manner, but the fact that you are continuously behind, and as Dr. Pearl pointed out about having to cut these industrial interruptable loads by 75 percent when you are a little bit short of water or power indicates that they probably, to some extent, would be short of the anticipation that they would be able to get additional cheap power. So, I do not know.

I think, generally speaking, industry has been moving out to the western part of the United States and would move there in any event, as I think is illustrated by the Los Angeles area and the new steam

generation that has gone in there where they do not have the water for hydropower.

Mr. HAND. I wonder if it can be said that the supply of power creates and produces growth, and that growth creates the demand for more power.

Mr. DEXHEIMER. I think if you take an area like the Tennessee Valley that probably would be true.

Whether it would be true in other areas or not is hard to say because so many of these areas have developed their industries, even with high-cost power, with steam generation, which is considerably higher cost power than the hydroelectric development in the Northwest.

Mr. HAND. Is that substantially true of the Northwest area that we are now discussing, or has the dramatic growth out there started since the ample supply of Federal power in the area became available?

Mr. DEXHEIMER. I think it is a little of both, because as pointed out the Northwest probably has cheaper power than any comparable area. The whole Western part of the United States has developed since they moved out there, even though they did not have the cheap rate for power that we have in the Northwest.

Mr. HAND. At least, it is certainly true that the growing supply of power provided by the Federal Government has rapidly accelerated that growth, is not that so?

Mr. DEXHEIMER. I think that is probably true.

POWER RATES

Mr. JENSEN. What are your rates now, or the different rates that you have in the Columbia River Basin, the commercial rates, your postage stamp rates, and all of them? Just give us a picture of your rates.

Mr. DEXHEIMER. Dr. Pearl, of course, would be able to answer that.

Dr. PEARL. Our basic rate is $17.50 per kilowatt-year, and, of course, that is based upon a 100-percent load factor.

The contracts with our customers have "ratchets" in them, and the rates will vary a little, depending upon their load factor, and the demand for power. It will range from 2 to 3½ mills. I am going from kilowatt-years to mills per kilowatt-hour. Our overall rate for power was 2.36 mills in calendar year 1954. That is the average of our rates to our customers in the calendar year 1954.

Mr. JENSEN. What was that average rate again?

Dr. PEARL. 2.36 mills.

Mr. JENSEN. 2.36 mills?

Dr. PEARL. Yes, sir. When you convert that to dollars per kilowatt-year it is something like $20.67. That is not exactly it. I can figure it out, but it will be awfully close to that.

SOURCES OF POWER CONSUMPTION

Mr. JENSEN. What percent of your power is sold to public-utility districts, what part of it is sold to private utilities, and what part is sold to household users?

Dr. PEARL. I have that all figured out. The public-owned utilities during calendar year 1954 consumed 5,381,900,000 kilowatt-hours.

Mr. JENSEN. What percentage is that of the overall?

Dr. PEARL. 27.3 percent.

The privately owned utilities consumed 3,715,600,000 kilowatt-hours. That is 18.9 percent.

The Federal agencies consumed 1,236,100,000 kilowatt-hours. That is 6.3 percent.

The industries consumed 9,362,900,000 kilowatt-hours. That is 47.5 percent.

The sum total of all of these I have just given is 19,696,500,000 kilowatt-hours.

INCOME FROM POWER SALES

Mr. JENSEN. What was the amount of income from that for the calendar year 1954?

Dr. PEARL. $46,405,000.

Mr. JENSEN. And your estimate for 1956 is what?

Dr. PEARL. It is approximately $60 million for fiscal 1956. If you want the exact figure, I can hunt that up.

Mr. JENSEN. How much money was covered into the Treasury in the fiscal year 1955? How much money did you pay to the Federal Government in the fiscal year 1955?

Dr. PEARL. The amount of $45,317,693.

Mr. JENSEN. What was that figure again?

Dr. PEARL. $45,317,693.

Mr. JENSEN. Are you current in your payments in accordance with your contracts?

Dr. PEARL. Yes, we are. We had a net revenue, in other words, last year.

CONTRACTS WITH PRIVATE UTILITIES

Mr. JENSEN. Now, are these contracts with private utilities firm contracts, or are they just day by day contracts?

Dr. PEARL. They are contracts in which there is a minimum of firm power stipulated per year for the next 5 years.

Each year we estimate how much power we can give them, and this is firm power, and as long as that is more than the amount that is in this 5-year agreement, of course it is all right.

If we were to curtail them below this minimum that has been quoted for 5 years in advance we would have to give them a 5-year notice before we could reduce that minimum. So, it is hard to classify it as firm or interruptible. It is a firm commitment, but it is not all firm power to meet their demand.

Mr. JENSEN. The power that the private utilities use is power which is over and above the power which you need to supply your preference customers?

Dr. PEARL. The industrial group in their contracts call for a stipulated amount of firm power, and the balance, of course, is interruptible power.

Mr. JENSEN. What do you get for your supplemental power?

Dr. PEARL. For the interruptible power?

Mr. JENSEN. Yes, for the interruptible power.

Dr. PEARL. As far as industry is concerned it operates on the same rate as their firm power.

If we enter into a contract with anybody for using what we call dump power it is two and a half mills.

GENERATION FROM HUNGRY HORSE DAM

Mr. JENSEN. Now, you have Hungry Horse power flowing into your system; have you not?

Dr. PEARL. Yes, sir, we have.

Mr JENSEN. Do you know what it is costing us to generate power at Hungry Horse?

Dr. PEARL. We have all of those figures, and I could supply them for the record if you would like to have them.

Mr. JENSEN. Can someone tell us approximately? That is a hydroelectric plant that was built recently during the high price era. It is entirely different from Grand Coulee and Bonneville in cost.

Mr. EVINS. I think Dr. Pearl is going to testify on Bonneville a little later, and I would suggest that you have those figures available for the committee at that time, either this afternoon or tomorrow.

Dr. PEARL. Yes, I will be glad to get those. We do have them, or do have them figured out, of course.

Mr. JENSEN. My guess is that it is costing a lot more money to generate power per dollar of investment involved than is true of Grand Coulee and Bonneville.

Dr. PEARL. There is no question about that. Coulee and Bonneville are the cheap ones.

Mr. JENSEN. Yes. We will never be able again to build hydroelectric plants that can produce power as cheaply as they produce power at Grand Coulee and Bonneville.

Of course, we only have one Columbia River and that is the greatest power producing river in the world, I presume.

REVENUE COVERED INTO RECLAMATION FUND

Mr. DEXHEIMER. Mr. Chairman, if I may, I would like to correct something that Dr. Pearl said in relation to the amount of money that was covered into the general fund of the Treasury.

Actually the revenue that Bonneville pays to the Bureau of Reclamation for Grand Coulee and Hungry Horse is covered into the Treasury in the Reclamation Fund rather than into the general fund of the Treasury.

Mr. JENSEN. Yes, I knew that.

Mr. DEXHEIMER. Yes, sir, I realized that you knew it. I wanted to put the record straight.

Mr. JENSEN. It is the same difference after it is all said and done.

Mr. DEXHEIMER. Yes, sir, that is correct. It is all subject to appropriation.

ESTIMATES INDICATE NO SURPLUS POWER

Mr. HAND. You testified that there was no present or immediately foreseeable surplus of power that we are producing or power that we are making and that we are scheduled to make. Is it not true that the latest report of the Northwest power pool indicates that in the years 1957 to 1959 even under adverse water conditions that there would be a surplus of power in the area?

Dr. PEARL. The charts we have worked out for our presentation show we can meet our loads during those years, but no excess.

Mr. HAND. No excess at all?

Dr. PEARL. That is right.

Mr. EVINS. Mr. Reporter, insert in the record at this point pages 1 and 2 under "General investigations."

(The matter referred to is as follows:)

COLUMBIA BASIN—JUSTIFICATION OF ESTIMATE, GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. EXAMINATIONS AND SURVEYS

(*a*) Navigation studies: The amount of $6,000 is requested for completion of 2 studies in the Columbia Basin during fiscal year 1956.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Oregon: Oregon Slough	$4,800	$3,800	$1,000	0
Washington: Priest Rapids lock	5,000	0	5,000	0
Total	9,800	3,800	6,000	0

(*b*) Flood control studies: The amount of $74,000 is requested for work on 5 studies in the Columbia Basin during fiscal year 1956. This amount will permit completion of 3 reports, the initiation of work on 1 report, and substantial progress on the other report.

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Idaho:				
Kootenai River	$50,000	0	$10,000	$40,000
Upper Snake River	892,000	$50,000	50,000	792,000
Oregon: Dry Hollow	8,500	0	8,500	0
Washington:				
Yakima River at Richland	3,000	0	3,000	0
Zintell Canyon, tributary of Columbia River (Kennewick)	2,500	0	2,500	0
Total	956,000	50,000	74,000	832,000
Grand total	965,800	53,800	80,000	832,000

Mr. EVINS. I note, Colonel, that you are requesting $80,000 for general investigations, and 5 of these are new studies.

Colonel WHIPPLE. Yes, sir.

NEW PROJECTS

Mr. EVINS. Would you give the committee a brief statement as to the scope of these new studies; naming them, and telling us what they embrace?

Colonel STARBIRD. The first one is for the Kootenai River.

We had a very serious flood there last year, and had to mobilize troops to fight it.

We are requesting $10,000 to initiate the Kootenai River study.

The second is in a residential area, Dry Hollow, of the city of The Dalles.

We are requesting $8,500 to complete the study for that location.

The next is on the Yakima River, at Richland, and that is again an urban area. We are requesting $3,000 to complete a study there. Finally, Zintell Canyon at Kennewick there is a small area, and we are requesting $2,500 to complete a study there.

KOOTENAI RIVER

Mr. EVINS. Colonel Starbird, can you go ahead on the survey on the Kootenai River in the absence of an agreement with Canada?

Colonel STARBIRD. Yes, sir. This survey is largely for the agricultural and urban areas which are below Libby Dam. They are entirely in the United States.

Mr. EVINS. And you are asking for a total of $80,000 for these general investigations?

Colonel STARBIRD. Yes, sir; that is correct.

PRIEST RAPIDS PROJECT

Colonel WHIPPLE. There is one other new one we omitted, and that is Priest Rapids lock.

The Priest Rapids project is authorized for prosecution. It was originally a Federal project. It is to be prosecuted under a bill passed by the last Congress, but the request is for a review as to whether a lock should be provided at the time of the initial construction of the dam. The existing legislation authorized provision for a future lock, but no initial lock. This money is for a review of the situation.

Mr. EVINS. Have all these studies been authorized?

Colonel WHIPPLE. Yes, sir.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. You are asking $880,000 for advance engineering and design. We will insert pages 3 through 8 of the justifications at this point.

(The matter referred to follows:)

COLUMBIA BASIN—JUSTIFICATION OF ESTIMATE, CONSTRUCTION, GENERAL, FISCAL YEAR 1956

ADVANCE ENGINEERING AND DESIGN

Funds in the amount of $880,000 will be applied to advance engineering and design on 10 projects in the Columbia Basin. Six of these projects will be brought to the stage where construction can be initiated. The 10 projects on which planning will be accomplished have a total estimated cost of $760,081,000 and consist of 6 flood-control projects and 4 multiple-purpose projects.

Project	Total estimate, Federal cost	Allotments prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects: None.				
Flood control projects:				
Idaho: Columbia River, local protection, Idaho, Oregon, Washington, Wyoming, Utah, Nevada, and Montana	$15,000,000	$140,000	$68,000	[1] $14,792,000
Oregon:				
Amazon Creek	894,000	617,000	22,000	[1] 257,000
Johnson Creek	519,000		35,000	[1] 484,000
Lower Columbia River, improvements to existing works (Multnomah Drainage District)	1,508,000		35,000	[1] 1,473,000
Washington: Colfax	2,460,000	84,000	40,000	2,336,000
Wyoming: Jackson Hole	2,000,000	50,000	55,000	[1] 1,895,000
Total, flood control	22,381,000	891,000	255,000	21,235,000
Multiple-purpose projects, inducing power:				
Montana: Libby Reservoir	268,000,000	536,000	15,000	267,449,000
Oregon:				
Cougar Reservoir	37,400,000	266,000	100,000	37,034,000
Hills Creek Reservoir	32,300,000	588,000	10,000	[1] 31,702,000
John Day Dam, Oreg. and Wash.	400,000,000		500,000	399,500,000
Total, multiple purpose	737,700,000	1,390,000	625,000	735,685,000
Reexamination of projects in "Deferred for restudy" category: None.				
Grand total, advance engineering and design	760,081,000	2,281,000	880,000	756,920,000

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

Mr. EVINS. Tell us which of those projects have been brought to the stage where construction can be initiated.

Colonel WHIPPLE. Colonel Starbird will testify on those.

Colonel STARBIRD. The first one to be brought to readiness for the initiation of construction is the Grande Ronde project.

This is a project for approximately 70 miles of channel improvement through a largely agricultural but with some urban area, in the State of Oregon.

The next project to be brought to construction readiness would be Amazon Creek.

The next would be Johnson Creek. That is a small tributary stream entering the Willamette in Portland.

We would bring the project to construction readiness with the funds requested.

The next would be the Multnomah project for protection of an agricultural and industrial area also to be brought to construction readiness with the requested funds.

The last flood-control project to be readied for construction would be Jackson Hole, for the protection of agricultural areas on the upper Snake River in Wyoming.

Colonel WHIPPLE. The only multiple-purpose project which would be ready for construction would be Hills Creek Reservoir, which is a project for flood control and power on the Middle Fork of the Willamette River in Oregon. The project is ready for construction now, and this money is for completing some further plans, after which the project will receive no more planning funds. It will be ready for a construction appropriation.

Mr. EVINS. All of these projects have a total estimated Federal cost of $760 million, 6 for flood control, and 4 multiple-purpose projects?

Colonel WHIPPLE. Yes, sir.

Mr. EVINS. Is there any opposition to any of these projects?

Colonel STARBIRD. Yes, sir; there was some scattered opposition voiced to the Grande Ronde project. We believe it has partially disappeared. The money requested is for planning. We believe those scattered objections will be eliminated as the planning advances.

Mr. EVINS. What is the attitude of Gresham toward the Johnson Creek project?

Colonel STARBIRD. I cannot answer that, but the Johnson Creek project consists of two parts. One part is the downstream improvement of the creek below mile 10.3 for the protection of urban areas of Portland, Oreg. The prevention of flood damage to the city of Gresham, Oreg., is involved in the other part of the project above mile 10.3.

Funds are requested for the lower section only and for that section assurances of local cooperation informally have been received.

STATUS OF PROJECTS REQUIRING LOCAL COOPERATION

Mr. EVINS. Some of these projects require local cooperation and others apparently do not.

Tell the committee what is the status of the ones that require local cooperation.

Colonel STARBIRD. The first one I have already mentioned, the Grande Ronde project.

The second is the Amazon Creek project. We have assurances of cooperation, and for the part of the project already accomplished, lands and rights-of-way have been furnished. Maintenance and operation is being carried on satisfactorily.

I also mentioned Johnson Creek. For that project local cooperation in the form of lands, rights-of-way, and relocations is required.

At Multnomah there is the normal local cooperation required together with a contribution for land enhancement.

There we have had informal contacts, but no formal contacts as yet relative to the cooperation. We believe that there will be no difficulty arising with respect to that project.

In fact, the local interests have already undertaken part of the construction that the Federal Government had planned to accomplish to the extent of about $375,000.

At Colfax we have formal assurances that the cooperation will be provided.

At Jackson Hole there have been meetings with local interests, but there has been no formal assurance given as yet relative to cooperation.

GRANDE RONDE PROJECT

Mr. EVINS. What is the relationship between the Grande Ronde project and the multiple-purpose project proposed in Reclamation in the same area?

Colonel STARBIRD. The Grande Ronde project is one for channel and levee improvement. We have been advised by the field that even

if upstream reservoirs were completed there would be the necessity for channel improvement involved there.

LIBBY DAM PROJECT

Mr. EVINS. Exactly what is the status of the Libby Dam project at this time?

Colonel WHIPPLE. The Libby Dam project has been authorized since 1950. It was introduced into the International Joint Commission several years ago and then later was withdrawn for the resolution of some questions involving site relocations.

Those questions have been resolved. We have a satisfactory site that removes the troubles we had with the lumber railway, and mineral interests, and the project has been reintroduced into the International Joint Commission with a view to its construction as soon as arrangements can be made for the maintenance of it.

Mr. EVINS. Will you now be able to proceed in the absence of any further agreement with Canada?

Colonel WHIPPLE. No, sir, we cannot and the indication is that it will take some time to reach that agreement. For that reason we are merely asking for enough to continue the studies which are essential in the negotiations with the Canadians for the purpose of the International Joint Commission.

COUGAR DAM

Mr. EVINS. Colonel Whipple, what is the status of the partnership arrangement on Cougar Dam?

Colonel WHIPPLE. A bill to that effect was introduced in the last Congress, which passed the House, and hearings were held on it in the Senate. The bill did not pass. The project is authorized as a Federal project including power at this time. Funds were made available for planning under a special appropriation last year, and that planning is continuing. That planning will be required and also the planning for 1956, whether or not to be built on a partnership arrangement if authorized by the Congress.

Mr. EVINS. I understand a considerable part of the funds appropriated last year for partnership projects is still unobligated.

Colonel WHIPPLE. Not a great deal on Cougar. I do not have those figures right at hand.

Mr. EVINS. Supply for the record the amount of the unobligated funds.

Colonel WHIPPLE. It is probably less than one-third on Cougar. We have obligated a good deal of that money.

(NOTE.—Of $600,000 appropriated for all partnership projects, $434,400 remained unobligated on March 31, 1955.)

JOHN DAY DAM

Mr. EVINS. What do you propose to do with the funds requested for the John Day Dam?

Colonel WHIPPLE. The John Day funds are required in order to initiate planning and, in particular, we have to investigate that section of the river to find a new and better lock site than the one at which

previous borings were taken during the survey of the canal. Our first activity will carry us beyond the detailed site selection studies. We have to initiate other design studies that are always required for a large project of this character.

Mr. EVINS. This is supposed to be a partnership program, is it not?

Colonel WHIPPLE. That remains to be decided by the Congress. This is not at the present time authorized for a partnership program; although I understand a bill is to be introduced to that effect in the current Congress. So far, no bill has been introduced. The bill last year did not come to a hearing and was not passed.

Mr. EVINS. Will these studies be looking forward to the development of this as a Government project, or a partnership project?

Colonel WHIPPLE. Insofar as we conduct them, they will be looking forward to the development of a sound engineering project that would be feasible as a partnership project in the event that it should be authorized. It is not yet necessary for those studies to differentiate between what would be done under either Federal construction or partnership arrangement. The activity would be consistent with partnership proposals that have been brought to our attention so far, which envisage the Government doing the design in any event.

Mr. EVINS. Colonel, I think that is a very good diplomatic answer.

Colonel WHIPPLE. Thank you, sir.

CONSTRUCTION, CORPS OF ENGINEERS

PORTNEUF RIVER AND MARSH CREEK PROJECT

Mr. EVINS. We come next to "Construction," and we will insert the justification for the Portneuf River and Marsh Creek project.

(The matter above referred to is as follows:)

PORTNEUF RIVER AND MARSH CREEK, IDAHO, UNIT OF COLUMBIA RIVER, LOCAL PROTECTION, IDAHO, MONTANA, NEVADA, OREGON, WASHINGTON, WYOMING, AND UTAH (NEW)

Location: On Portneuf River through Pocatello and vicinity, river mile 8 to 17, and in the vicinity of Inkom, river mile 27.8 to 29.7, and along the lower 39 miles of Marsh Creek.

Authorization: 1950 Flood Control Act.

Benefit/cost ratio: 1.13 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$1,193,000	
Estimated local cash contribution	0	
Estimated project cost	1,193,000	
Appropriations to June 30, 1954	20,000	
Appropriations for fiscal year 1955	25,000	
Appropriations to date	45,000	4
Appropriations requested for fiscal year 1956	500,000	46
Balance to complete after fiscal year 1956	648,000	

Physical data

Relocations (bridges):
Inkom, Marsh Creek area, United States Highway 191
Channels:
Pocatello area, 9 miles along Portneuf River
Inkom area, 1.9 miles along Portneuf River
Marsh Creek area, 39 miles along Marsh Creek
Flood control and diversion structures:
Inkom area, 1 debris basin
Marsh Creek area, 3 regulation structures, 6 debris basins

Status (Jan. 1, 1955)	Percent	Completion schedule
Relocation (bridges)	0	October 1958.
Channels	0	June 1959.
Flood control and diversion structures	0	November 1958.
Entire project	0	June 1959.

Justification: The initial construction would provide flood protection to commercial, industrial, and residential areas in and adjacent to the city of Pocatello, and to important main-line railroad facilities and municipal improvements, all of which serves an important irrigated agricultural area. The Union Pacific Railroad between Chicago and the Pacific Northwest, and the main north-south line between Montana and Salt Lake City pass through Pocatello and portions of their facilities lie within the flood plain of Portneuf River. Important defense facilities, including a large naval ordnance depot are served by these railroads and their operations could be seriously handicapped by traffic interruptions due to floods. Floods that damage residential areas occur almost annually and a major flood would disrupt all major activities of the area and would adversely affect regional activities. The flood of April-May 1952, caused damages estimated at $130,000 on Portneuf River and Marsh Creek.

Fiscal year 1956: The requested amount of $500,000 will be applied to:

Construction of channel improvement in the Pocatello and vicinity unit of the project	$454,500
Engineering and design	5,000
Supervision and administration	40,500
Total	500,000

The completion of the Pocatello and vicinity unit of the project will give the urban, suburban, and adjacent rural areas of Pocatello flood protection from the greatest flood of record on Portneuf River.

Mr. EVINS. Give us a general statement on this project, particularly as to the status of required local contributions.

Colonel STARBIRD. This project is one of several authorized in the 1950 Flood Control Act. Glancing at the map, you will see the project consists of two parts. The part shown in red outlining in Pocatello, and the second part in brown for extensive upstream channel improvement. The part for which funds have been requested this year is the part shown in red, that in the area of Pocatello, Idaho. The work there has a total estimated Federal cost of $500,000, the amount of the request. We have had negotiations with the local interests and they have given us informal assurance that they will provide the lands and rights-of-way. We intend to turn over to them shortly the plans which will show exactly where the lands and rights-of-way are wanted. As an indication of their good faith, they have already reconstructed 3 highway bridges, 1 footbridge, and, I believe, a pipeline crossing to the new planned dimensions.

Mr. EVINS. The estimated Federal cost is $1,193,000; the appropriation to date is $45,000; the amount requested for 1956 is $500,000, bringing the overall Portneuf project to 46 percent completion.

Mr. HAND. That is a local protection project?

Colonel STARBIRD. This is a local project and the part described that for the city of Pocatello, a city of 26,000 present population.

Mr. HAND. The benefit-cost ratio is apparently small, at 1.13 to 1.

Colonel STARBIRD. The overall is 1.13 to 1; the benefit-cost ratio of the Pocatello unit we have been talking about for the fiscal year 1956 program is 1.22 to 1.

LUCKY PEAK RESERVOIR

Mr. EVINS. Lucky Peak Reservoir is the next project under construction. We will insert pages 15 and 16 of the justifications.

(The matter referred to follows.)

LUCKY PEAK RESERVOIR, IDAHO (CONTINUING)

Location: On the Boise River, 64.5 miles above the mouth, 10.2 miles upstream from Boise, Idaho.

Authorization: 1946 Flood Control Act.

Benefit cost ratio: 1.26 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$19,900,000	
Estimated local cash contributions	0	
Estimated project cost	19,900,000	
Appropriations to 30 June 1954	16,455,000	
Appropriations for fiscal year 1955	1,750,000	
Appropriations to date	18,205,000	91
Appropriations requested for fiscal year 1956	500,000	94
Balance to complete after fiscal year 1956	1,195,000	

Physical data

Dam:
- Type, rolled fill
- Height, 340 feet
- Length, crest, 1,700 feet

Spillway:
- Type, ungated ogee with unlined channel
- Capacity, 85,000 cubic feet per second

Outlet:
- Type, valve controlled pressure tunnel with flip-type stilling basin
- Size, 23 feet diameter
- Capacity at normal pool, 30,500 cubic feet per second

Reservoir capacity:
- Minimum pool: 26,000 acre-feet
- Maximum pool: 306,000 acre-feet
- Usable storage: 280,000 acre-feet

Relocations:
- State highways: 11.9 miles
- County roads: 7.0 miles
- Power and telephone lines: 20.5 miles

Status (Jan. 1, 1955)	Percent	Completion schedule
Lands and damages	97	June 1955.
Relocations	75	June 1957.
Reservoir	99	March 1955.
Dam	96	November 1955.
Roads	66	Do.
Recreation facilities	0	October 1956.
Buildings, grounds, and utilities	0	December 1955.
Permanent operating equipment	16	December 1956.
Entire project	86	June 1957.

Justification: The project is a storage reservoir primarily for the control of destructive floods along the main stem of the Boise River from above Boise to the mouth of the river, an approximate distance of 60 miles. It is the key flood-control unit in the Boise River Basin, which makes possible more effective use of flood-control space in Anderson Ranch and Arrowrock Reservoirs, constructed upstream from this project by the Bureau of Reclamation in the principal interest of irrigation, and will provide some irrigation storage during low runoff years, when storage in Anderson Ranch and Arrowrock Reservoirs will not be sufficient. A coordinated operation plan of the Corps of Engineers and the Bureau of Reclamation will permit effective operation of the 3 reservoirs for flood-control purposes whereby a total storage space of 983,000 acre-feet can be made available for control of unusual floods. The floods of 1936 and 1943 caused damage amounting to $400,000 and $997,000, respectively. A recurrence of these floods under present conditions of development in the flood plain at current price levels would cause damages estimated at $1,100,000 and $2,415,000, respectively without flood-control reservoirs. A recurrence of a flood of 1894 magnitude would cause damages of $12,450,000.

Fiscal year 1956: The requested amount of $500,000 will be applied to—

Continue repairs of slides on road relocations	$268,900
Complete painting of trash racks	3,000
Complete construction of reservoir access roads	16,000
Initiate construction of recreation facilities	32,300
Complete construction of buildings, grounds, and utilities	85,000
Continue procurement of permanent operating equipment	6,700
Engineering and design	30,000
Supervision and administration	58,100
Total	500,000

Mr. EVINS. Give us a statement of the progress.

Colonel STARBIRD. The Lucky Peak project is estimated to cost $19,900,000. It is nearing completion; in fact, the funds requested for fiscal year 1956 are only $500,000, and final completion funds would be requested in fiscal 1957.

This is a project for protection of approximately 60 miles of agricultural, industrial, and urban areas along the Boise River, and for a degree of protection also on the Snake.

I should mention that this is 1 of 3 reservoirs that will be completed shortly, or have been completed, by the Federal Government on the Boise River. Two are completed and were built by the Bureau of Reclamation. The three are to be operated jointly in the interest of flood control and irrigation.

Mr. EVINS. You have encountered considerable difficulty in relocations, because the request for additional funds for relocations is some $600,000 over last year. Is that correct?

Colonel STARBIRD. That is correct. The highways concerned had to be located on extremely steep slopes, the natural stability of which may be disturbed. Consequently, slides may occur. To date, we have had slides that have cost us $255,000 to repair. This has indi-

cated that possibly our former estimate was low. We now estimate the probable cost of slide repair to be somewhere in the neighborhood of $1.5 million. We are not requesting all of the funds to complete the slides in fiscal year 1956, but only enough, roughly, to complete half of the slides that we believe will occur but have not yet occurred.

Mr. EVINS. I believe that is the reason you carry a construction contingency item of $152,000?

Colonel STARBIRD. We carry altogether in contingencies, including the item you mention, a total amount which represents 12 percent of the estimated cost of the work yet to be done. As of the latest estimate date, 12 percent of the work remaining, amounts to about $450,000. We have made no reestimation since June 30, 1954. However, in view of the indefinite nature of these slides, the indefinite time when they may occur, we believe it would be unwise to cut drastically the contingencies.

Mr. EVINS. This project is to be completed in 1957?

Colonel STARBIRD. It will be completed in 1957 unless slides occur and appropriations thereafter are made.

WILLAMETTE RIVER BASIN, OREG.

Mr. EVINS. The Willamette River Basin is the next project under construction. We will insert pages 21 through 23 in the record at this point.

(The matter above referred to is as follows:)

WILLAMETTE RIVER BASIN, OREG.—BANK PROTECTION (CONTINUING)

Location: Critical erosion areas exist along the banks of the Willamette River from New Era to a point above Eugene at the confluence of the Middle Fork of the Willamette and the Coast Fork. Throughout this reach of 152 miles the Willamette River flows, in general, through an alluvial flood plain. Critical erosion areas also exist along 287 river miles of the lower reaches of nine of the major tributaries. These tributaries are the Coast Fork of the Willamette River, Row River, Middle Fork of Willamette River, McKenzie River, Calapooya River, Santiam River, Molalla River, Pudding River, and the Clackamas River.

Authorization: 1936, 1938, and 1950 Flood Control Acts.

Benefit/cost ratio: 1.56 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$11,000,000	
Estimated local cash contributions	0	
Estimated project cost	11,000,000	
Appropriations to June 30, 1954	5,402,000	
Appropriations for fiscal year 1955	300,000	
Appropriations to date	5,702.000	52
Appropriations requested for fiscal year 1956	300,000	55
Balance to complete after fiscal year 1956	4,998,000	

PHYSICAL DATA

Bank stabilization: The plan of improvement provides for clearing, sloping, and revetting riverbanks, construction of pile and timber bulkheads and drift barriers, and minor channel improvements. Individual locations vary in length from 300 to 3,500 feet and in height from 5 to 20 feet. Materials used in stabilizing the slope include local gravels bound with asphalt or cement sand, and quarrystone.

STATUS

Bank stabilization: 269,085 linear feet completed to date. During remainder of fiscal year 1955 work will be initiated at one additional location. At the end of fiscal year 1955 the project will be 52 percent complete. Completion is scheduled for fiscal year 1962.

Justification: Continuation of the bank-protection program at critical locations is essential in the prevention of erosion of riverbanks and flooding of highly developed urban and agricultural areas. The riverbanks along the main stream and lower reaches of its tributaries are composed of deep alluvial soils disposed to erode with streamflows approaching bankfull. Construction of bank-protection works on the main stream provides channel stabilization, thereby securing a measure of flood control through increased carrying capacity of the channel.

This project is an integral part of the comprehensive plan for flood control and other purposes in the Willamette River Basin. Control by reservoirs or levees will not be adequate to protect these banks as erosion takes place below bankfull stage. Prolonged periods of near bankfull flow, which will be a normal condition during reservoir releases following floods, will result in additional bank erosion. Such erosion is a continuing process; the material erodes from one bank, forming a bar downstream and causing streamflow against the bank at that point, resulting in additional erosion. This erosion destroys productive farmlands, roads, bridges, and other improvements. If erosion is allowed to continue avulsions through low overflow channels will destroy valuable property and cut off extensive areas from their normal access to roads and markets and require construction of new roads and bridges. The agricultural development of the Willamette River Basin has been most phenomenal in recent years. The tremendous increase in population of the Willamette Valley has resulted in subdivision of many tracts and the smaller units are more intensively cultivated. Curtailment of the bank-protection program would result in a substantial loss to regional and national economy because of the irreplaceable destruction of the valley's most fertile land. Reduced appropriations for this project during recent years have resulted in deferring work on many critical locations. Continued unchecked erosion at such locations not only increases the cost of corrective work but adversely affects downstream locations and channel capacities.

Local interests are required by the Flood Control Act of May 17, 1950, to provide all local cooperation specified by section 3 of the act of June 22, 1936, as amended. All future construction will be accomplished under authorization of the Flood Control Act of May 17, 1950, which requires, in part, that local interests provide assurances that they will maintain the completed works. Construction subsequent to fiscal year 1953 has been accomplished under this authorization.

Fiscal year 1956: The requested amount of $300,000 will be applied to complete those locations on which construction is initiated during fiscal year 1955, and initiate work at 6 locations, tentatively selected as follows:

Willamette River and Middle Fork Willamette: Location No. 7 D/S, W. W. Smith Estate, Denlinger, and Hout locations.
Santiam River: Crown Willamette and Landstrom locations.

The early construction of needed bank stabilization would reduce the number of locations of very active bank erosion and eliminate the formation of downstream bars that deflect the stream toward the banks and cause critical erosion at new locations. By stabilizing the banks, depositions in downstream channels are reduced and channel capacities are less impaired.

The curtailed funds available during recent years for the bank-stabilization program have permitted correction of only the most critical locations and have allowed erosion to continue at other locations to increase substantially the cost of corrective measures. The rate of construction should be increased to provide the necessary improvement of the stream commensurate with the reservoir program.

Mr. EVINS. Give us a general statement on this project and tell us about the status of required local contributions.

Colonel STARBIRD. This is a project for the stabilization of the banks along the navigable channel and other channels, partially below the already constructed reservoirs, on the Williamette and several tributary rivers of the Williamette.

The last investigation of the situation prior to authorization was made about 1948 and at that time we determined there were 171 locations badly needing repair work. To date, under the new authorization of the 1950 Flood Control Act, we have repaired 12 locations. We have also repaired some 131 locations under the prior authorization.

We have programed in the fiscal year 1956 with the $300,000 work at seven locations. We have actually received assurances of local cooperation at five of those locations to date.

I might mention here that the lands and relocations do not offer much of a problem. If a man is going to lose his land, he is normally quite willing to give the land necessary for protection.

Mr. EVINS. The 1950 act carries a requirement for local contribution?

Colonel STARBIRD. That is right, sir, and all the work is to be accomplished under the latter, rather than the former act.

LOOKOUT POINT RESERVOIR

Mr. EVINS. The next project under construction is the Lookout Point Reservoir. This project is virtually completed.

We will insert the justifications in the record at this point.

(The matter above referred to is as follows:)

LOOKOUT POINT RESERVOIR, OREG. (CONTINUING)

Location: Lookout Point Dam (Meridian site) is located on the Middle Fork Willamette River at river mile 21.3, about 22 miles southeast of the city of Eugene, Oreg. A reregulating reservoir, also a part of this project, will be created by Dexter Dam located about 3 miles downstream of the Lookout Point Dam.

Authorization: Flood Control Acts of 1938 and 1950.

Benefit/cost ratio: 1.45 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$88,600,000	
Estimated local cash contributions	0	
Estimated project cost	88,600,000	
Appropriations to June 30, 1954	85,176,000	
Appropriations for fiscal year 1955	3,000,000	
Appropriations to date	88,176,000	99
Appropriations requested for fiscal year 1956	200,000	99.7
Balance to complete after fiscal year 1956	224,000	

Physical data

LOOKOUT POINT DAM

Dam:
Type: Earthfill with concrete gravity spillway river section:

Height above stream bed	feet	250
Length	do	3,175

Spillway:
Type: Gate controlled, concrete ogee section with stilling basin.
Capacity: 270,000 cubic feet per second.
Outlets:
4 Walker valve controlled rectangular conduits 6.75 feet by 12 feet.
Capacity: 24,050 cubic feet per second at pool elevation, 825 feet.
Power installations:
3 units at 40,000 kilowatts; 120,000 kilowatts.
Nominal head: (average) 185 feet.
Reservoir capacity:

	Acre-feet
Flood control storage (to elevation 929)	340,000
Power storage (to elevation 825)	11,000
Minimum power pool storage (to elevation 819)	105,000
Total storage	456,000

Flood control storage will be filled after the flood season and water released in the interest of power, irrigation, navigation, and other conservation uses during low runoff periods.

DEXTER DAM

Dam:

	Feet
Type: Earthfill with concrete gravity spillway river section.	
Height above stream bed	80
Length	2,835

Spillway:
Type: Gate controlled, concrete O. G. section with stilling basin

Capacity (cubic feet per second)	270,000

Outlets: None.
Reservoir capacity:

	Acre-feet
Power reregulating pondage (at elevation 695)	3,650
Minimum power pool storage (at elevation 690)	23,850
Total storage	27,500

Pondage will reregulate flows discharged from Lookout Point for power.
Power installation:
1 unit at 15,000 kilowatts.
Nominal head: (Average) 53 feet.

Status Jan. 1, 1955	Percent	Completion schedule
Entire project	94	Entire project, June 1957.
Acquisition of reservoir area	96	Land acquisition (including Dexter), December 1955.
Relocations	99	Relocations (including Dexter), June 1957.
At Lookout Point Dam		Conservation storage (interim plan) at Lookout Point, April 1954.
Work on the earth dam, concrete spillway, relocations, and land acquisitions.	99	Flood control storage at Lookout Point, October 1954.
Construction of powerhouse and appurtenant facilities.	90	Reregulation at Dexter, September 1954.
Installation of turbines, piping, and electrical work.	67	Power on the line:
Procurement of turbines, generators, governors, and appurtenant equipment.	99	Lookout Point:
At Dexter Dam:		1 unit 40,000 kilowatts, December 1954.
Relocations and land acquisition	99	1 unit 40,000 kilowatts, April 1955.
Construction of the earthfill, powerhouse, concrete spillway, and appurtenant work.	98	1 unit 40,000 kilowatts, June 1955.
Installation of powerhouse equipment, including the supervisory cable and miscellaneous items.	30	Dexter: 1 unit 15,000 kilowatts, April 1955.
Procurement of the turbine, generator, and appurtenant equipment.	95	

Justification: This project is being constructed for flood-control and power development, with extensive benefits being derived from navigation, irrigation, domestic water supply, pollution abatement, power at downstream plants, and other conservation uses. This reservoir is one of the most important units in the comprehensive plan for flood control and other purposes in the Willamette River Basin. It will provide control of floods in the valley of the Middle Fork, and with the two small reservoirs on the Coast Fork, Willamette, it will provide a reduction of about 94 percent of the flood damages in the West Springfield and Eugene areas and 61 percent in the Junction City and Harrisburg areas. This reservoir, together with other reservoirs in the system, will afford protection for 10 cities and their suburbs situated along main Willamette River and for 513,000 acres of agricultural lands which are subject to frequent overflow. The power produced at the main dam and the reregulating dam is needed to help meet the demands of the rapidly growing power market in the Willamette Valley and to help relieve the power shortages on the Columbia River system. Storage at this reservoir will provide water for irrigation of lands in the Willamette Valley and increased flow during the low-water period for navigation, downstream power-plants, abatement of pollution, promote fishlife, develop domestic water supply, together with other conservation uses.

Fiscal year 1956: The requested amount of $200,000 will be applied to—

Extraordinary maintenance of relocations	$61,200
Recreation facilities at Lookout Point	93,200
Recreation facilities at Dexter	29,500
Engineering	6,100
Supervision and administration	10,000
Total	200,000

Funds requested are required to meet contract commitments and minimum recreational development to control public access to the reservoirs in the interest of public safety, sanitation, and fire control.

Mr. EVINS. Colonel, will you give the committee a brief statement particularly with reference to the proposal for fish hatcheries?

Colonel WHIPPLE. I think the committee might like to see the appearance of these large multiple-purpose projects. This is beautiful country. As you can see, that project is nearing completion. The estimated cost of this project has been reduced from the previous figure of $90.8 million to $88.6 million, and the funds requested for fiscal 1956 are $200,000. That will be used to complete the relocations and public-use facilities.

There are fish hatcheries provided for in connection with this project which are required in order to replace some of the spawning grounds that would be lost. The fish are to be moved upstream through the dam and released at that point later, so that the young fingerlings can grow and ultimately come down the Willamette into the sea. The estimate of the cost to include fish facilities in the project is $1,500,000. Originally we thought another hatchery would be required, but that has now been eliminated, since the others have been determined to be sufficient.

Mr. EVINS. Did you have some State fish hatcheries in that area that the Federal Government had to take over? Did you have any controversy with the State conservation department?

Colonel WHIPPLE. There is remaining unanswered the question as to the ultimate operation and maintenance of these projects. At one time it was considered that the Federal Government would, on completion of the project, pay the State a sum of approximately $5 million for capitalized "Operation and maintenance," for which the State would take over and operate the hatcheries in perpetuity. We still think it is desirable to have the State, rather than the Federal Govern-

ment, operate those hatcheries, because they do have a very active and efficient fisheries organization in the State of Oregon. However, the question of operation and maintenance, as to what extent it is to be local and to what extent at Federal cost, has yet to be determined. We have not yet completed arrangements for the State to take over the operation of those hatcheries.

Mr. EVINS. How does Dexter reregulating dam tie in with the Lookout Point Reservoir?

Colonel WHIPPLE. The requirement for the Lookout Point Reservoir project will require that it be used to absorb peaking loads of the Eugene area. As you can see on the map, Lookout Point Dam is over 200 feet high, with a large storage capacity. Dexter Dam, immediately downstream, which has approximately 55 feet of head, will regulate the flow from the larger powerhouse on the Lookout Point project. In this way, the releases of the water below the Dexter Dam can be kept uniform while the main project is varying its turbine discharges in order to meet peak loads. This is necessary because the flows of the river downstream are very important to water supply, fish and wildlife and navigation requirements, and the flow through the town of Eugene. A uniform release is very desirable.

Dexter Dam will generate enough power of its own to pay for itself and make a better balanced installation. We have similar facilities for one other dam that has already been built, and one other that is contemplated.

Mr. EVINS. The estimated Federal cost for the total project is $88,600,000; appropriations to date, $88,176,000, and the project is 99 percent completed.

Colonel WHIPPLE. Yes, sir.

Mr. EVINS. How is the power of these units to be marketed?

Colonel WHIPPLE. It will be disposed of through the Bonneville Power Administration. There is a large market demand in the immediate vicinity in that part of Willamette Valley. It is very close to the load center.

Mr. EVINS. I do not find in your justifications the income from power sales on these projects. I suppose that would be reported through the Bonneville Power Administration?

Colonel WHIPPLE. Yes, sir. This project does have a very favorable benefit-cost ratio and the income will be sufficient to amortize the cost.

Incidentally, two of the units of this project are on the line, and the third one will come on the line in June. Dexter Dam is scheduled to produce power this month. So the project will be fully in operation by the end of the fiscal year.

M'NARY LOCK AND DAM

Mr. EVINS. The next project under construction and nearing completion is the McNary lock and dam. I understand it is virtually complete. We will insert the justifications at this point.

(The matter referred to follows:)

McNary Lock and Dam, Oregon and Washington (Continuing)

Location: On the Columbia River, 292 miles above the mouth, 34 miles below the mouth of the Snake River, 2½ miles upstream from the town of Umatilla, Oreg.

Authorization: 1945 River and Harbor Act.

Benefit/cost ratio: 1.44 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$287,300,000	
Estimated local cash contributions	0	
Estimated project cost	287,300,000	
Appropriations to June 30, 1954	244,039,000	
Appropriations for fiscal year 1955	24,000,000	
Appropriations to date	268,039,000	93
Appropriation requested for fiscal year 1956	11,000,000	97
Balance to complete after fiscal year 1956	8,261,000	

Physical data

Dam:
- Type: Concrete gravity with earth and rockfill abutments.
- Height: 183 feet (maximum above bedrock).
- Length: 7,365 feet.

Spillway:
- Type: Gate controlled, concrete ogee weir with stilling basin.
- Capacity: (Maximum pool) 2,200,000 cubic feet per second.

Reservoir capacity:
- Pondage (5 feet drawdown) 185,000 acre-feet.
- Deadstorage (below elevation 335) 1,160,000 acre-feet.
- Total storage 1,345,000 acre-feet.

Power installation:
- Initial: 14 units at 70,000 kilowatts; 980,000 kilowatts.
- Ultimate: 14 units at 70,000 kilowatts; 980,000 kilowatts.
- Design head: 80 feet.

Relocations:
- Railroads:
  - Spokane, Portland & Seattle, 38.1 miles
  - Union Pacific, 23.81 miles
  - Northern Pacific, 7.04 miles
  - UP–NP joint operation, 11.05 miles
- Highways:
  - State of Oregon, 7.12 miles
  - State of Washington, 24.30 miles
  - County Roads, 40.71 miles
- Utilities, 82.6 miles
- Cemeteries, 200 graves

Navigation lock:
- Type, single lift
- Size, 86 feet by 675 feet
- Lift (maximum), 92 feet

Pumping plants: 15 pumping plants with total design capacity of 256,000 gallons per minute.

Levees:
- Average height, 15 feet
- Length, 19.2 miles

Status (Jan. 1, 1955)	Percent	Completion schedule
Lands and damages	98	June 1956.
Relocations:		
Roads	97	December 1956.
Railroads	91	June 1957.
Cemeteries, utilities, and structures	99	June 1955.
Reservoir	86	June 1956.
Dam	99	December 1956.
Lock	99	June 1956.
Fish facilities	99	June 1955.
Powerplant:		
Powerhouse	96	March 1957.
Turbines and generators	70	December 1956.
Switchyard, accessory, and miscellaneous equipment, tailrace	71	March 1957.
Roads and railroads	93	November 1955.
Channels	0	Do.
Levees	97	December 1955.
Pumping plants	100	
Recreation facilities	0	June 1957.
Buildings, grounds, and utilities	69	Do.
Permanent operating equipment	72	December 1956.
Entire project	90	June 1957.

Justification: McNary lock and dam, a navigation and power project, will provide 67 miles of slackwater navigation on Columbia and Lower Snake Rivers, 980,000 kilowatts of power-generating capacity and other multiple-purpose uses. The McNary pool and lock will serve the movement of an estimated 3,600,000 tons annually, principally in petroleum, agricultural, mineral, and lumber products, and is an essential unit in the navigation development of the Columbia and Snake Rivers. The 1952–53 power resources in the Pacific Northwest region total approximately 5,774,000 kilowatts (BPA 1952 advance program). Power demands in the region have increased so materially that power shortages are retarding industrial and other developments. The total estimated peak-load requirement for 1956 is estimated at 9,424,000 kilowatts. In addition to navigation and power, creation of the pool will benefit development of over 244,000 acres of irrigable lands by reduction in cost of pumping plants and pipelines. Important incidental benefits will accrue to the project from public use of the reservoir.

Fiscal year 1956: The requested amount of $11 million will be applied to:

Complete acquisition of lands in the reservoir area	$117,000
Relocations	484,000
Complete reservoir preparation	70,000
Complete repairs to left abutment embankment	35,000
Complete navigation lock	92,000
Continue construction of powerhouse and complete installation of power generating units Nos. 9, 10, 11, and 12	8,352,900
Complete maintenance and access roads, lounching and moorage facilities	31,000
Complete excavation of downstream approach channel	75,000
Complete levee revetment repairs and construction of additional drainage facilities	158,000
Initiate construction of recreation facilities	47,900
Continue construction of buildings, grounds, and utilities	336,500
Continue acquisition of permanent operating equipment	126,000
Engineering and design	458,100
Supervision and administration	616,600
Total	11,000,000

With the funds requested for fiscal year 1956, the scheduled dates for placing power units 9 through 12, a total of 280,000 kilowatts, can be met together with payments being made for the acquisition and installation of equipment for units 13 and 14 scheduled to be placed in service during the first two quarters of fiscal year 1957. The maintenance of the power-on-line schedule is essential in meeting present power deficits and the forecasted power requirements of the Pacific Northwest. Essentially all major construction and supply contracts have been awarded on a continuing basis and the funds requested are necessary to liquidate those commitments.

Colonel WHIPPLE. I would like you to see a picture of the powerhouse, because these generators are physically the largest generators in the world.

Mr. EVINS. For McNary Dam?

Colonel WHIPPLE. Yes, sir; and these are the first three of the units. You can see one of those is coming on the line. In the assembly bay, another unit is being assembled. The small light on the unit that is closest indicates it is now producing power. Those units are 53 feet in diameter and have a total bearing load of 4 million pounds—2,000 tons. There are 14 of those units.

This project now has one-half of its installed capacity on the line. There are 70,000 kilowatts produced by each unit and, of course, an overload capacity on top of that.

You can see the powerhouse is located over on the Oregon side. The powerhouse and superstructure is virtually complete. In the spillway, you can see the very long fish ladder, half a mile long, for the salmon to go up. The fact that the fish ladder is one-half mile long indicates the size of the structure. The lock is the highest single-lift lock in the world, with a maximum lift of 92 feet.

The amount of power capacity to be installed is almost 1 million kilowatts. The completion of this project is now merely a routine matter of installing the remaining units at 3-month intervals, most of which will be installed with the 1956 funds now requested.

Mr. EVINS. The cost of this project is $287,300,000; the amount appropriated to date is $268,039,000. The project is 93-percent complete. The request for next year is $11 million.

Colonel WHIPPLE. Yes, sir.

DISPOSITION OF TOWNSITE

Mr. EVINS. One other question in regard to McNary Dam. I understood it was necessary for you to build a community townsite there. What has been the disposition, if any, of the townsite?

Colonel WHIPPLE. It has not been disposed of as yet. We decided last year it was time to dispose of the townsite, because the construction operations remaining are quite routine, being mainly the installation of the remaining generators. However, there has been some difficulty in completing arrangements because of our operation still going on there. Although we are ready to sell it and make some arrangements for disposing of the housing, the employees who live in the townsite like the present regime. However, it is not economical to the Government to maintain this townsite, and we feel the Government should dispose of it. However, we have not been able to dispose of it so far.

Mr. EVINS. You have not found a bidder yet?

Colonel WHIPPLE. I think we can find a bidder; that is, I believe the General Services Administration will be able to find a bidder. There is good housing there and other quite good facilities which could be used for commercial purposes. Therefor, I think they will be able to find a bidder for it.

POPULATION OF THE AREA

Mr. JENSEN. What is the population in that area?

Colonel WHIPPLE. It is a quite sparsely populated area, with only 8 inches of rainfall in the vicinity of McNary Dam. The irrigation development is quite small. There are some large population increases going on in the area immediately to the east and north, in the vicinity of Walla Walla, Kennewick, and Richland.

Mr. JENSEN. How far is Walla Walla?

Colonel WHIPPLE. About 40 miles, sir.

Mr. JENSEN. How many people live at the townsite now?

Colonel WHIPPLE. It is not all full, and I cannot tell you. It is all temporary housing, of course, but some of it is good family housing. There is enough housing to accomodate 300 people, at least.

Mr. JENSEN. How many are you going to require to operate the dam?

Colonel WHIPPLE. For the dam operation itself, the staff will be something over 100. But many of them have already made housing arrangements and they won't all be the same ones who will live in this immediate vicinity.

THE DALLES DAM

Mr. EVINS. The next project under construction is The Dalles Dam in the Columbia River Basin. We will insert the justifications at this point.

(The matter referred to follows:)

THE DALLES DAM, COLUMBIA RIVER, WASH. AND OREG. (CONTINUING)

Location: On the Columbia River, which forms the State line between Oregon and Washington, at river mile 192.5 above the mouth of the river and 90 miles east of Portland, Oreg.

Authorization: 1950 River and Harbor and Flood Control Act.

Benefit/cost ratio: 1.51 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$300,000,000	
Estimated local cash contribution	0	
Estimated project cost	300,000,000	
Appropriations to June 30, 1954	56,676,000	
Appropriations for fiscal year 1955	36,000,000	
Appropriations to date	92,676,000	31
Appropriations requested for fiscal year 1956	63,500,000	51
Balance to complete after fiscal year 1956	143,824,000	

Physical data

Dam:
Type, concrete gravity with rockfill river closure.
Height from stream bed to top of dam (rockfill section), 279.0 feet.
Elevation, top of dam, 185.0 feet.
Length, 8,700 feet.

Reservoir:	*Acre-feet*
Pondage for power	53,000
Dead storage	264,000
Total	317,000

Power installation:
Initial, 14 units at 78,000 kilowatts; total 1,092,000 kilowatts substructure for additional 8 units.
Ultimate, 22 units at 78,000 kilowatts; total 1,716,000 kilowatts.
Nominal head (average), 81 feet.

Spillway:
Type, Tainter gate controlled, concrete ogee section with stilling basin
Capacity, 2,290,000 cubic feet per second at elevation 179 feet

Navigation lock:
Type, single lift
Lift (normal), 87.5 feet
Size, 86 by 675 feet

Fish facilities:
North fish ladder, 24 feet wide, slope 1 on 16
East fish ladder, 30 feet wide, slope 1 on 16
Fish lock at east fish ladder
A channel leading from the south end of the spillway to the powerhouse will connect to the east fish ladder. The fish collection system along the downstream face and at each end of the powerhouse substructure will also connect to the east fish ladder. Normal lift, 87.5 feet

STATUS (JANUARY 1, 1955)

Entire project, 22 percent
Acquisition (possession) of reservoir area, 25 percent
Relocations, 30 percent
Indian negotiations, agreements have been reached and initial payments of $200,000 have been made to each of the Warm Springs and the Umatilla Tribes. Negotiations underway with Celilos, Yakimas, and Nez Perce
Rough excavation of the powerhouse and construction of powerhouse cofferdams, procurement of cofferdam steel, construction of temporary facilities including temporary relocation of the S. P. & S. Railway around the navigation lock site. 100 percent
Concrete spillway, spillway tainter gates, excavation of approach and discharge channel, 70 percent

Phase I substructure for 14 main units, station service units, fish attraction units, and assembly bay complete, 60 percent.
Phase III substructure for units 15 through 22, east fish ladder, fish lock and east nonoverflow dam, 24 percent.
Procure 14 turbines, 2 S. S. turbines, 2 fish attraction water turbines, governors, generators, transformers, switchgear, 6 percent.

COMPLETION SCHEDULE

Entire project, November 1960
Land acquisition, June 1957

Relocations, December 1956
Indian negotiations, October 1956
Closure dam, December 1957
Locks in operation, April 1957
Fish facilities in operation, April 1957
Power on line:
Two main units (78,000 kilowatts each), November 1957
Balance at rate of 1 unit each 3 months with 14th and last unit of initial installation being placed on line, November 1960

STATUS (JANUARY 1, 1955)	COMPLETION SCHEDULE
Procure powerhouse intake gates, hydraulic operating equipment, trash racks, draft tube stoplogs, and other mechanical equipment, 8 percent.	
Closure dam construction, rockfill, 0 percent.	
Navigation lock, north fish ladder, north nonoverflow dam, 7 percent.	
Phase II: Construct powerhouse superstructure for 14 units, station service bay, fish attraction water bay, nonoverflow between powerhouse and spillway, fish channel, install embedded turbine parts, intake gates and machinery, trash racks, and draft tube stoplogs. Bids were received December 1954 and work will start in June 1955.	
Installation contract to assemble and install turbines, transformers, mechanical and electrical equipment, 0 percent.	

Justification: The present power generating facilities of the Pacific Northwest are insufficient for the current regional power demand. The project, to be constructed primarily in the interest of power development and navigation, will provide an installed capacity of 1,092,000 kilowatts for power generation, 25 miles of slack-water navigation on Columbia River, and minor multiple-purpose uses. The Dalles pool and lock, an essential unit in the authorized slack-water navigation development of the Columbia and Snake Rivers, will ultimately serve the movement of an estimated 4,600,000 tons annually, consisting primarily of grains, petroleum products, and industrial products. The project will submerge the existing Dalles-Celilo locks and canal which are inadequate for present traffic. Power demands in the Pacific Northwest are increasing so rapidly that power shortages are retarding industrial and other developments. Power to be produced at this project is needed to assist in overcoming the existing shortage and to provide for increasing future load growth. Agricultural lands adjacent to the pool now irrigated or to be irrigated by pumping from the Columbia River will be benefited by lower operating costs resulting from the reduction in pumping lift by as much as 88 feet. Incidental benefits will accrue to the project from public use. The completion of this project will result in far-reaching benefits to the national economy in that it will provide a large block of power for industry. Of special significance is the fact that The Dalles project will function as a peak-load plant and will require relatively short transmission lines to primary load centers, thereby necessitating less investment in transmission facilities to serve industries in the Pacific Northwest.

Fiscal year 1956: The requested amount of $63,500,000, will be applied to—

Continue acquisition of lands in the reservoir area	$2, 188, 900
Continue negotiations with Indian groups	287, 900
Continue relocations	9, 687, 300
Complete construction of the spillway dam, the powerhouse substructure, the east fish ladder and nonoverflow dam	16, 146, 900
Continue construction of the powerhouse superstructure, navigation lock, north fish ladder, and nonoverflow dams adjacent to the spillway	13, 435, 700
Initiate construction preparatory to placing rockfill closure	3, 000, 000
Continue procurement of mechanical and electrical equipment and initiate installation of equipment	13, 606, 300
Other appurtenant construction	610, 200
Engineering and Design	1, 166, 700
Supervision and Administration	3, 370, 100
Total	63, 500, 000

Fund requirements outlined above for fiscal year 1956 are required to complete, continue, or initiate contracts under a very tight completion schedule. Extensive work stoppages on several of the major contracts, such as might be caused

by occurrence of a major flood or severe winter conditions, might preclude meeting the scheduled power date. As now scheduled, the closure dam will be placed during the low water period of 1956–57 after the upstream migration of the 1956 fish run. Placing of the rockfill closure dam will be started in October 1956 and will progressively divert the entire flow of the Columbia River through eight skeleton units of the powerhouse, thereby raising the upstream water surface. Accordingly, all land acquisition, Indian negotiations, relocations, and major structural items of the dam must be essentially complete by October 1956. In view of the fact that the closure dam can be placed only during the low water period, failure to complete the above work by October of 1956 will delay placing of the closure dam 1 year and would also delay the placing of power on the line about 8 months. As the critical power shortage also occurs during the low water period on the Columbia River, the use of the power generation would be lost, in effect, for a period of 1 year. Mechanical and electrical equipment schedules are correspondingly tight and are based on delivery dates that allow a minimum of installation time to meet the scheduled power date.

Colonel WHIPPLE. The Dalles Dam has a very interesting and unusual layout. I would like to point out the principal features of this project, because it is so unusual and I would like to give the committee as clear a picture as possible.

This Dalles site is an area where the river goes through very narrow and deep channels. There is a very deep channel here [indicating] which is well over 200 feet and farther down, there are channels that are 300 feet deep.

Most of the river flows through this area, including small channels there [indicating] and a wide flat channel adjacent to the Washington side, which is largely a flood channel.

If you will look at this map, you will see that the project is being built in the form of a Z, with the powerhouse in the middle. The powerhouse is parallel in direction to the flow of the river. The spillway is at a right angle to it and the lock is adjacent to the Washington shore. One of the last things to be done will be to construct the closure fill to the Oregon shore which will be made by moving in large masses of rock.

This is a rather unorthodox arrangement. It is a very economical one, however, because the powerhouse will be just exactly the right depth, and when we close that section with rock, it will simply remain there as a portion of the dam.

The entire area of the powerhouse is enclosed by a cofferdam, with ample room for construction operations.

You can see the city of The Dalles in the background and this [indicating] is the Columbia River going downstream.

The cement for the construction of this project, and it requires a large amount, is brought up by sea-going barges directly to the site of the project. The project is just getting into full-scale construction.

We had quite large unexpended and unobligated balances last year. The conference committee report last year required us to keep this project going at a rate so as to put at least the first four units on the line as previously scheduled by the utilization of available funds together with the amount appropriated in 1955. We have had to use not only these funds but have loaned the project $6.5 million, borrowed from temporary surpluses on other projects. By the end of the current fiscal year we expect to have all of that money obligated and only about one-half million dollars unexpended. That is all we expect to have left from the available appropriations plus the $6.5 million which has been loaned to the project. The project is on schedule; we expect all of its units can be brought on line as scheduled,

the first 2 units in November 1957, and 1 unit every 3 months thereafter.

The estimated cost of this project has been reduced by favorable circumstances in construction and by some extremely fine bids. In the last year we reduced the cost estimate from $348 million to $300 million, or a reduction of $48 million. We anticipate during the course of next year, that it will be possible to make a further reduction in the cost of this project.

The relocations were giving us some trouble last year, but we have now completed our main relocations agreement with the second of the major railroads concerned, the S. P. & S. Railroad. And although there are some further negotiations in connection with the Oregon trunk bridge, we believe this will not hold up the project. We are not behind schedule in that respect at the present time.

INDIAN PROBLEMS

Mr. EVINS. What is the status of the Indian problem in that area?

Colonel WHIPPLE. We have two Indian problems, the largest of which is the problem of Indian fishing rights. As I reported to the committee last year, there is an estimated total amount of $26 million which should be paid to the Indians for those fishing rights. That amount was arrived at in cooperation with the Fish and Wildlife Service and the States, and is based on evaluation of the annual fish catch. As of last year, we had an agreement with the Warm Springs and Umatilla Tribes which have about a one-third interest in this fishery. We have now completed an agreement with the Yakima Indians and have just obtained approval of the Secretary of the Interior. I believe it will be possible to complete the processing of that agreement very shortly.

That leaves two small tribes of Indians, the Nez Perce and Celilos. Insofar as the Celilo village is concerned, it is a question of the residence of the Indians actually at the fishing grounds and immediately adjacent to the river. The difficulty there is that those Indians will be reimbursed for their fishing rights, which we are fully willing to do, but the houses they live in have virtually no property value. They do not own the land on which the houses are located and the houses are a very low grade type of habitation. Our real-estate appraisers have stated that they average $400 each and, looking at them, you would wonder how any one would say they are worth that much.

The question is one of moving these Indians out of homes that have virtually no commercial value, what are you going to do with them, and should the Federal Government do something a little more than simply pay them $400 and remove them?

The Indian Service and the local people feel there is a responsibility of the Federal Government toward these people that is not adequately covered by the legal rights that they have. We are proposing to proceed and not let the construction of the dam be held up by this matter while we try to resolve this legal question. It will probably require additional authorization and in the event that legal and administrative questions can be resolved we are proposing to apply some of the funds in fiscal 1956, possibly up to $200,000, toward the rehabilitation of these Indians in the event legislation to permit that should be enacted.

Mr. EVINS. Does that statement appear in the justifications?
Colonel WHIPPLE. No, sir, it does not.

REHABILITATION OF THE INDIANS

Mr. HAND. Referring for just a moment to this moral problem of the rehabilitation of the Indians: They are squatting now on land which does not belong to them personally; is that correct?

Colonel WHIPPLE. I hesitate to call it squatting. The land is owned at the present time by the Department of the Interior, having been transferred to that Department by the War Department some years ago, and I think it is up to the Interior Department to state whether the Indians are squatting, or not.

Mr. HAND. But they are on land which is not owned by them personally?

Colonel WHIPPLE. That is correct.

Mr. HAND. Is there any available land in that vicinity of the same character?

Colonel WHIPPLE. That is a very difficult problem. There is land available and, furthermore, if there were not, we probably could make some land available. But the people in the communities concerned and the county, and also the Indian agencies themselves, do not consider it is sound policy to encourage those Indians to remain isolated in a little community by themselves as they now are. These agencies feel the Indians should not be relocated in that area, but should be encouraged to settle in available communities or else on reservations where they would have a more satisfactory type of community life.

We are not experts in this matter. We originally felt all we had to do was to remove the Indians to the other side of the relocated railroad; but this is not very satisfactory. They will no longer be able to catch the same fish in the river that they have lived on for so many generations. It does seem, from a commonsense point of view, that some type of rehabilitation will be practically necessary and that simply to relocate them in the vicinity would not be a satisfactory solution.

Mr. HAND. What is proposed to be done with this estimated rehabilitation fund of $200,000 for fiscal 1956?

Colonel WHIPPLE. We do not have any definite estimate to support that. That is an estimate that has been cited by the local Indian Service officials in the vicinity who have talked with the county and our people. And the reason I wanted to introduce that figure is I felt it should now be cleared with the Appropriations Committee, because the relocation will have to take place this summer and we felt the committee should give its sanction to the use of funds for that purpose, subject to the understanding that this would only be done in the event proper legal authorization for what was proposed would exist.

Mr. HAND. And there is no such legal authorization now?

Colonel WHIPPLE. It would depend on what was done. Certain types of relocation could be carried on under existing authorization; but what we understand the Indian agencies and the county would like to do would require relocating those Indians at considerable expense per family in other communities, at a cost very greatly in excess, proportionately, to the commercial value of the habitations they have at the present time. We do not think legal authority exists for us to spend money for that purpose.

Mr. HAND. In that event, you would have to take another look at the money angle if and when authorization was obtained?

Colonel WHIPPLE. Yes. And in the event authorization was not passed, we would propose to acquire these lands, buy these Indians' homes by condemnation, and move them out, rather than to hold up construction on the dam, and leave the Indians to welfare agencies of the county and anyone else who was legally constituted and authorized to handle really what is a social rehabilitation problem and not really part of the construction of the dam.

Mr. HAND. My question was in the event a new authorization is required, the Appropriations Committee would probably have to take another look at the money involved?

Colonel WHIPPLE. I was hoping, in view of the close time element—

Mr. HAND. That you would get some blessing now?

Colonel WHIPPLE. That the Appropriations Committee would not require us to wait until next year to sanction the use of funds; because from a practical point of view, if the dam is to be completed, the Indians must be moved this summer.

LEGAL BASIS FOR FISHING RIGHTS

Mr. HAND. What is the legal basis for the fishing rights? Is that based on treaties between the tribe and the United States?

Colonel WHIPPLE. That is based on treaties between the tribe and the United States.

Mr. HAND. Does that clearly spell out the fishing rights?

Colonel WHIPPLE. That spells them not as specifically as they might be, but it guarantees the Indians the right to fish at their usual and accustomed fishing grounds, and the ancestors of the Indians did in fact fish those fishing grounds long before the white man came. It has been considered legally as well as equitably that they should be compensated for that right.

Mr. HAND. Is that right in all cases based strictly on a treaty between the tribes and the United States?

Colonel WHIPPLE. Not in all cases. In the case of the Celilos, which is a small group of Indians living directly at the site, certain of the Indians belong to tribes which have treaty rights. We have not been able to clearly identify the tribal affiliation of other Indians of this group. Some, apparently, who are not actually related, are included in that small group. That has not yet been settled, and there may be a question as to whether they are fully covered by treaty rights.

Mr. HAND. How was the $26 million value determined?

Colonel WHIPPLE. It was arrived at by obtaining the best information we could as to the number of fish that were caught. That was a rather difficult proposition, because no formal records were kept.

Mr. EVINS. I note, Colonel Whipple, in your breakdown of allocation of funds for relocation for next year you have $5,597,700 for that and, under fish facilities, $6,781,900. Has it not been the custom and perhaps so stated before this committee in the past, to use funds allocated for relocation to pay damage claims and to settle for relocation of any citizen that is being dislocated by a dam development? In other words, it has not been necessary to secure special legislation to use funds for relocation purposes, has it?

Colonel WHIPPLE. We have the necessary authority for removing railroads, communication lines, and so forth.

Mr. EVINS. And individuals and their homes?

Colonel WHIPPLE. Yes, sir.

Mr. EVINS. Wherein would the removal of an Indian citizen be any different from the removal of any other citizen?

Colonel WHIPPLE. Legally we could remove Indians in that way; but the difficulty there is that under our present legal authority we could only pay them for the actual appraised value of their habitations, and that is not sufficient or anywhere near sufficient for them to acquire satisfactory homes in any other location.

Mr. EVINS. You indicated that they do not own the land. Tell the committee how they acquired the fishing rights.

Colonel WHIPPLE. They acquired the fishing rights by treaty of the tribes with the United States very close to 100 years ago.

Mr. EVINS. And, again, the amount of money which the appraiser said should be paid to the Indians is how much?

Colonel WHIPPLE. The total is $26 million. But that is only for the fishing rights and would not include anything for the removal of Celilo Village.

Mr. EVINS. How much would that entail for removal?

Colonel WHIPPLE. In addition to the normal real estate acquisition, which we are already prepared to fund, it is estimated that $200,000 may be required for the rehabilitation of the Indians in the event statutory authority should be obtained for that purpose.

Mr. EVINS. The total of $26,200,000 is what you propose to divert from funds which you indicate you have saved by the more economical building of this structure?

Colonel WHIPPLE. Sir, that is not quite the situation; because the $26 million has always been part of the project estimate. That estimate was made about 3 years ago and was in the previous estimate presented to the committee. The only new item in the estimate as regards the Indians is this tentative estimate of $200,000 for rehabilitation of the Celilo group.

Mr. EVINS. How much did you testify earlier you saved of the estimated cost, or that the estimated cost had been reduced on this project?

Colonel WHIPPLE. $48 million.

Mr. EVINS. Is it the plan of the Corps of Engineers, is it the purpose, is it the intention, to use some of the money which you have saved to settle these Indian claims?

Colonel WHIPPLE. Yes, sir; I think that is essentially correct. I think it is a question of definition as to what you mean by "saved."

Mr. HAND. How many Indian families are involved in this proposed relocation?

Colonel WHIPPLE. There are approximately 20 houses which are used as residences by approximately 26 families. In addition to that there are some other buildings, approximately 200 other buildings in the village, such as shacks and drying sheds used temporarily during the fishing season.

Mr. HAND. On the basis of the tentative allocation of a couple of hundred thousand, that would amount to $10,000 per dwelling; would it not?

Colonel WHIPPLE. Yes, sir.

Mr. HAND. Approximately how many recipients are involved in the proposed distribution of the $26 million for fishing rights?

Colonel WHIPPLE. There are approximately 4,000 members of those tribes. Excuse me; that is only the Yakimas; there are around 7,000 Indians in the tribes that are receiving this payment. I can insert the exact figures in the record.

(The matter referred to is as follows:)

The number of recipients involved in the proposed distribution of the $26 million is estimated to total 7,793.

Mr. HAND. I suppose that is based on the number of Indians entitled to membership in the tribe by reason of their treaty rights, and they are entitled to that payment regardless of whether or not they have ever done any fishing? Is that correct?

Colonel WHIPPLE. Yes; that is the basis; although we let the tribes themselves actually make the distribution within the tribes.

Mr. HAND. Do we pay the tribes and then it is up to the tribe, or do we pay the individuals?

Colonel WHIPPLE. We pay the tribe and it is up to the tribe.

The Nez Perce reimbursement is on a different basis. That has not yet been determined. It will be much less, however, because their interest is proportionately much less.

BIDS ON DALLES DAM LESS THAN ESTIMATES

Mr. JENSEN. Colonel, do I understand you received a bid of $46 million less than your estimate on this project?

Colonel WHIPPLE. Not one single bid. There have been a number of bids that have been let during the year. As a result of those bids, the estimates have been changed, taking cognizance of the bids.

Mr. JENSEN. But in the overall, you did get bids of $46 million less than your overall estimate on these different parts of the project; is that right?

Colonel WHIPPLE. That is essentially correct.

Mr. JENSEN. How many bidders did you have; do you remember?

Colonel WHIPPLE. There are several different contracts involved and all of them had different numbers of bidders. So I cannot answer as to any single one.

Mr. JENSEN. Approximately? I would like to know. Was it 5, 6, 10, or 20?

Colonel WHIPPLE. On some construction contracts we had over 10. We have had good competition on all of those contracts and usually a much larger number of bidders than we had, say, 2 or 3 years ago.

Mr. JENSEN. What was the difference between the high bid and the low bid, would you say?

Colonel WHIPPLE. We have usually had very close competition between 2 or 3 firms as regards the low bid. Then there has been a scattering in the range of bids, with some very high.

Mr. JENSEN. Here is a bid that ranged from $2,591,000 to $4,734,000.

Colonel WHIPPLE. I would say that is about characteristic.

Mr. JENSEN. Were all of them bona fide bids? Were they reputable concerns?

Colonel WHIPPLE. Some of them we consider to be what is called complimentary bids.

Mr. JENSEN. Complimentary bids?

Colonel WHIPPLE. That is probably a poor term.

Mr. JENSEN. I have heard about those kind of bids.

Colonel WHIPPLE. I think the upper ones in this range are not very serious.

Mr. JENSEN. Do you always take the lowest responsible bid?

IMPORTS OF GENERATORS AND TRANSFORMERS

Colonel WHIPPLE. We do, except when something like the Buy American Act comes along. Then there will sometimes be exceptions required by law.

Mr. JENSEN. Since you mention that, what percent of the material that you bought last year in the way of machinery was imported?

Colonel WHIPPLE. Virtually none of it, except in the way of generators and transformers.

Mr. JENSEN. That is what I am trying to find out.

Colonel WHIPPLE. In generators and transformers together, approximately 50 percent of the contracts have been awarded to foreign firms.

Mr. JENSEN. Approximately 50 percent has been imported?

Colonel WHIPPLE. That is the number of contracts that have been awarded.

Mr. JENSEN. From where did that come?

Colonel WHIPPLE. English Electric, the largest one. We have had two Italian transformer contracts.

Mr. JENSEN. Are they subsidiaries of our large producers—any of them?

Colonel WHIPPLE. Absolutely not.

Mr. JENSEN. There is no connection?

Colonel WHIPPLE. The English Electric is a very large and powerful competitor of General Electric and Westinghouse in the international markets. It serves the British Commonwealth and is a very fine technical organization. Legnano is the Italian firm which I referred to as getting transformer contracts and it apparently is technically competent. They are certainly not a subsidiary of any American firm. I think they are completely independent technically as well as financially.

Mr. JENSEN. Well, producers of those generators located in the United States sell a lot of their products to England, for instance?

Colonel WHIPPLE. Yes, sir; they do. And in the items that are mass produced, these firms cannot normally compete at all.

Mr. JENSEN. Ours cannot compete?

Colonel WHIPPLE. No, sir; the foreigners cannot compete.

Mr. JENSEN. The foreigners cannot compete?

Colonel WHIPPLE. Yes, sir. It is only on very large, specially designed, tailormade pieces of equipment which have to be assembled by hand and involve large amounts of labor that foreign firms find they have a much greater advantage than they would have in producing products such as refrigerators, air-conditioning equipment, and so forth, which are manufactured by mass production methods.

Mr. JENSEN. Just what does our law say with reference to the purchase of foreign materials of this nature?

Colonel WHIPPLE. It says in effect, sir, that the bids for Federal procurement will be awarded to American manufacturers unless there is an unreasonable discrepancy between the low American bid and the foreign bid.

Mr. JENSEN. Does it provide for a certain percent?

Colonel WHIPPLE. The law does not; no, sir.

Mr. HAND. What is reasonable or unreasonable is defined from time to time by Executive order or otherwise, is not that right?

Colonel WHIPPLE. Until recently, it was defined by practice in specific cases. There has been an Executive order issued on the subject now.

CHIEF JOSEPH DAM AND RESERVOIR

Mr. EVINS. The next project under construction is the Chief Joseph Dam and Reservoir. The estimated Federal cost is $169 million; appropriations to date, $108,846,000. The project is 65 percent complete. The appropriation request for fiscal 1956 is $18 million, bringing this project to 73 percent completion.

We will insert in the record pages 61 through 63 at this point.

(The matter above referred to is as follows:)

CHIEF JOSEPH DAM, COLUMBIA RIVER, WASH. (CONTINUING)

Location: On the Columbia River, 545 miles above the mouth, 51 miles below Grand Coulee near the mouth of Foster Creek, 1½ miles upstream from the town of Bridgeport, Wash.

Authorization: 1946 River and Harbor Act.

Benefit-cost ratio: 2.23 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$169,000,000	
Estimated local cash contributions	0	
Estimated project cost	169,000,000	
Appropriations to June 30, 1954	81,846,000	
Appropriations for fiscal year 1955	27,000,000	
Appropriations to date	108,846,000	65
Appropriations requested for fiscal year 1956	18,000,000	73
Balance to complete after fiscal year 1956	42,154,000	

Physical data

Dam:
- Type, concrete gravity
- Height, 220 feet (maximum above stream bed)
- Length, 2,264 feet (concrete section, exclusive of intake structure)

Spillway:
- Type, gate-controlled, concrete ogee weir with stilling basin
- Capacity, maximum pool, 1,250,000 cubic feet per second

Reservoir capacity:
- Area, normal full pool, 12.2 square miles
- Storage, normal full pool, 518,000 acre-feet
- Power (poundage for 5 feet of drawdown), 37,000 acre-feet
- Flood control, 0 acre-feet

Power installation:
- Initial: 16 units at 64,000 kilowatts; 1,024,000 kilowatts
- Intermediate: 20 units at 64,000 kilowatts; 1,280,000 kilowatts
- Ultimate: 27 units at 64,000 kilowatts; 1,728,000 kilowatts
- Presently planned: 16 units at 64,000 kilowatts; 1,024,000 kilowatts
- Nominal head: 175 feet

Status (Jan. 1, 1955)

	Percent	Completion schedule
Entire project	61	Entire project, June 1959.
Acquisition of lands	36	Land acquisition, June 1957.
Relocations	10	Relocations, September 1955.
Excavation of powerhouse intake channel	100	Water in intake channel, April 1955.
Construction of access roads and bridges	100	Dam closure, March 1955.
Housing and administrative facilities for construction period.	100	Power on line (1 unit=64,000 kilo watts): 3 units September 1955, balance at rate of 1 unit every 3 months with 16th unit being placed on line in December 1958.
1st stage construction including construction of 1st cofferdam for main dam on right bank, right bank excavation, and upstream earth blanket to control seepage in right abutment.	100	
2d stage construction including foundation excavation for main dam, powerhouse, and intake structure; placement of main dam concrete, including stilling basin and training walls; installation of spillway tainter gates, construction of spillway bridge and roadway; and placement of impervious fill and rock fill around right abutment.	98	
Procurement of equipment for main dam: 19 tainter gates and operating machinery, gates for diversion sluiceways, switchgear, and truck cranes.	99	
Construction of powerhouse and intake structure including final foundation excavation; placement of concrete for powerhouse and intake structure; installation of embedded turbine parts for 16 units; penstocks and other items.	86	
Procurement of powerhouse and intake structure mechanical and electrical equipment: Wire and cable (1st group), 2 powerhouse bridge cranes and trolleys, intake gantry crane, draft tube gantry crane, draft tube stop-logs, 4,160-volt switchgear, station service substation, station service control switchboards, 480-volt motor control centers, intake gates, and operating machinery.	100	
Procurement of powerhouse electrical and mechanical equipment now under contract including 16 100,000-horsepower turbines; 864,000-kilowatt generators; main transformers for 12 units; turbine governors for 10 units; station service generators, turbines, and governors; main control boards for 8 units; main unit substation for 12 units; 15-kilovolt breakers and grounding equipment for 12 units; and associated equipment.	26	

JUSTIFICATION

Hydroelectric power potential is one of the great natural assets in the Pacific Northwest and particularly in the Columbia River Basin. Since the end of World War II, construction of dams and reservoirs for power and other purposes has been undertaken on a large scale by public and private sources to meet the constantly increasing market for electric power. Chief Joseph Dam is one of the major projects in this program. Construction started in 1949 and has now reached the stage where turbines and generators are being installed in the powerhouse with the first three units scheduled to be in operation by September 1955. When the 16 generators presently planned are completed as scheduled in December 1958, 1,024,000 kilowatts of installed capacity will be added to the Northwest power system. Acute power shortages during periods of low river flows in the winter months have resulted in brownouts and industrial shutdowns. Completion of Chief Joseph Dam as scheduled is essential to alleviate such shortages, as well as to provide new capacity for forecasted needs. Estimates by the Bonneville Power Administration indicate that the Northwest power demand will increase about 3,500,000 kilowatts from 1954 to 1958.

Fiscal year 1956: The requested amount of $18 million will be applied to:

Continue acquisition of lands in the reservoir area	$100,000
Complete relocations	133,000
Complete construction of powerhouse and intake structure	2,150,000
Continue installation of powerhouse equipment and machinery	784,000
Continue procurement of turbines, generators, transformers, and other machinery and operating equipment	13,571,000
Operation and maintenance expense during construction	84,000
Recreation facilities	18,000
Engineering and design	500,000
Supervision and administration	660,000
Total	18,000,000

The earliest possible completion of Chief Joseph Dam is essential to meet present power supply deficits and forecasted power requirements. Funds in the amount of $18 million are required to meet the present schedule for power production, which provides for the first 3 units being on the line in September 1955 and each of the remaining 13 units put into production at 3-month intervals.

Mr. EVINS. Tell us about this project.

Colonel WHIPPLE. Again, sir, I would like to call attention to the rather unorthodox layout of this project. The dam, which is a relatively high dam on the Columbia River just below Grand Coulee, will have a head of 175 feet. The spillway is in the main channel of the river and there is a very long powerhouse extending to the edge of the riverbank on the south side of the river. Behind the powerhouse there is an excavated channel. When the dam is completed, the water will flow through this channel behind the powerhouse and down through the powerhouse and reenter the river. This layout was necessary because the powerhouse is to be so long that there would not be room for more than half of the units if the powerhouse was placed across the river which is quite narrow at this point.

This project will produce very cheap power. The remark was made earlier that we will never again see the days of Grand Coulee and Bonneville. That is certainly true, but this project is quite a close competitor, because for $169 million you will note that the initial installed capacity is 1,024,000 kilowatts. That is very, very cheap power.

The project is going extremely well and from an engineering, as well as an economical point of view, we consider this an outstanding project. It is nearing completion. The first power will come on the line this fall and thereafter there is no reason to expect anything but that the remaining units will come on the line at the scheduled rate.

Mr. EVINS. From looking at the picture and an examination, it would appear there will only be a limited amount of water that could flow through the generating units. The overflow from the big dam comes around the side?

Colonel WHIPPLE. No, sir. Those sluices you can see discharging water will, of course, be closed in order to fill the project.

Mr. EVINS. I understand that, but the only water that comes through the generating unit will be that which comes around the top, will it not?

Colonel WHIPPLE. Normally, sir, the river flows will come around that way in passing through the generators [indicating]. It will only be during seasons of high flood flows that any water will be passed over the dam spillway, particularly after the ultimate installation is completed, which will generate 1,728,000 kilowatts.

Mr. EVINS. Most of the items shown are 98 to 100 percent complete?

Colonel WHIPPLE. Yes, sir.

OPERATION AND MAINTENANCE, CORPS OF ENGINEERS

COLUMBIA BASIN—JUSTIFICATION OF ESTIMATE

OPERATIONS AND MAINTENANCE, GENERAL, FISCAL YEAR 1956

1. Navigation

(a) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels and harbors of coastal harbors and waterways by means of dredging and repairing of navigation structures and periodic inspections and surveys to determine the condition of the projects for

programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $2,413,000 for fiscal year 1956 is required for essential maintenance work on seven channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis which determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly structural repairs and the maintenance of moderate and shallow-draft navigation channels. This condition continues to exist.

Project	*Tentative allocation, fiscal year 1956*
Oregon:	
Columbia River between Vancouver, Wash., and The Dalles, Oreg	$100,000
Columbia River at the mouth, Oregon and Washington	230,000
Columbia and lower Willamette below Portland, Oreg., and Vancouver, Wash	1,600,000
Willamette River above Portland and Yamhill River	390,000
Washington:	
Columbia River at Baker Bay	25,000
Columbia River and tributaries above Celilo Falls	25,000
Cowlitz River	35,000
Condition surveys	8,000
Total, channels and harbors	2,413,000

(*b*) *Locks, dams, reservoirs, and canals.*—The budget estimate of $260,000 provides for the operation and ordinary maintenance of two lock and dam projects in the Columbia Basin. The amount requested in fiscal year 1956 is approximately $32,000 less than the amount available in fiscal year 1955, and is considered the minimum necessary for operation and maintenance of the projects.

Project	*Tentative allocation, fiscal year 1956*
Oregon:	
The Dalles-Celilo Canal, Oreg. and Wash	$100,000
Willamette River at Willamette Falls	160,000
Total locks, dams, reservoirs, and canals	260,000
Total navigation	2,673,000

2. Flood control

(*a*) *Reservoirs.*—The budget estimate of $245,000 provides for the operation and ordinary maintenance of five flood-control reservoirs in the Columbia Basin during the fiscal year 1956 and nondeferrable rehabilitation work. The benefits that accrue from the impoundment of damaging floodwaters by this extensive reservoir system are substantial. The amount requested in fiscal year 1956 is approximately $105,000 more than the amount available in fiscal year 1955. This increase is due to the Lucky Peak Reservoir being placed in complete operational status and additional nondeferrable rehabilitation work on the Fern Ridge and Mill Creek Reservoirs. The amount requested is the minimum necessary for adequate and efficient operation and maintenance of the projects.

Project	*Tentative allocation, fiscal year 1956*
Idaho: Lucky Peak Reservoir	$61,000

(*a*) *Reservoirs.*—

Project	*Tentative allocation, fiscal year 1956*
Oregon:	
Cottage Grove Reservoir	$31,000
Dorena Reservoir	30,000
Fern River Reservoir	74,000
Washington: Mill Creek Reservoir	43,000
Scheduling of flood-control reservoir operation	6,000
Total flood-control reservoirs	245,000

(b) *Other (including channel improvement projects, miscellaneous maintenance items, and inspections).*—The budget estimate of $70,000 provides for the minimum requirement of regular maintenance of the Willamette River bank protection project, condition surveys, and inspection of completed works during fiscal year 1956. The estimate includes $2,000 for condition surveys in order to establish the extent of rehabilitation work necessary to place the Willamette River bank protection project in proper condition for transfer to local interests when legislation becomes available authorizing the termination of Federal responsibility for its maintenance.

Project	*Tentative allocation, fiscal year 1956*
Oregon:	
Willamette River bank protection project	$50,000
Inspection of completed works	20,000
Total flood control, other	70,000
Total flood control	315,000

3. Multiple-purpose projects including power

The budget estimate of $4,095,000 for the operation and maintenance of six multiple-purpose projects in the Columbia Basin during fiscal year 1956 is the minimum amount necessary for operational requirements during fiscal year 1956. It contemplates deferment of other than indispensable ordinary maintenance and rehabilitation work. As construction features on five of the projects are being completed and placed in maintenance status in fiscal year 1956, the amount requested is an increase of approximately $1,432,000 over the total available in fiscal year 1955. This increased amount includes $431,000 for the initial operating requirements of 1 project under construction which will have completed features reaching maintenance status; approximately $417,000 for the increased operation and ordinary maintenance needed at 4 projects approaching completion; and approximately $584,000 for urgent rehabilitation work at the older project. The completion of power-generating units at these projects will add 756,200 kilowatts of installed capacity during fiscal year 1956, increasing the total generating capacity of all Corps of Engineers multiple-purpose projects in the Columbia Basin to 2,021,000 kilowatts.

Project	*Tentative allocation, fiscal year 1956*
Idaho: Albeni Falls Reservoir	$182,000
Oregon:	
Bonneville Dam	1,800,000
Detroit Reservoir	309,000
Lookout Point Reservoir	320,000
McNary Dam	1,053,000
Washington: Chief Joseph Dam	431,000
Total multiple-purpose projects including power	4,095,000
Total Columbia Basin	7,083,000

Mr. EVINS. For operation and maintenance, you are requesting $7,083,000. Give us a statement in justification of the need for these funds.

Colonel POWERS. The operation and maintenance requirements are broken down into requirements for navigation, flood control, and multiple-purpose projects.

The navigational system, of course, is on the main stem of the Columbia River and the numerous tributaries. There are 26 authorized and completed channel and harbor projects in the entire Columbia River Basin, of which a recent review determined that 5 were no longer justified for continued maintenance.

Our long-range program for dredging requirements extends over the next 3 years and for the repair of navigation structures, extends over the next 6 years. We have requirements in these programs on

only 8 of the 21 channel and harbor projects justified for continued maintenance. There are 13 projects which we do not feel will require any work in the next 3 years for dredging, or the next 6 years for repair of structures. Of the 8 that are required to be maintained in these periods, only 7 require work in 1956, as shown on the justification sheets.

On lock and dam maintenance, there are two canals in operation, the Dalles-Celilo Canal and the Willamette River at Willamette Falls. Last year we closed out operation and maintenance of the lock on the Yamhill River in the interests of economy, due to the lack of navigation in that area.

On flood-control reservoirs, the Lucky Peak Reservoir is in expanded operation this year and requires additional maintenance funds. There are certain nonrecurring rehabilitation works necessary at Fern Ridge and Mill Creek Reservoirs which also increase the maintenance requirements on those projects for fiscal 1956.

Mr. EVINS. The total fund of $7,083,000 is for maintenance and operation work in three States—Washington, Oregon, and Idaho?

Colonel POWERS. Yes, sir.

Mr. EVINS. I believe that completes the justification of the Corps of Engineers, and the committee will next consider the Bureau of Reclamation justifications.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Under "General investigations" the Bureau of Reclamation is requesting $978,558. We will insert in the record pages BR–3 through BR–14.

(The matter above referred to is as follows:)

SUMMARY BY ACTIVITIES—COLUMBIA BASIN

Estimated costs of investigations in the current program

Activity	Estimated total	Total, June 30, 1954	Program, fiscal year 1955	Program, fiscal year 1956	Balance to complete
Engineering and economic investigations	$7,376,483	$3,480,449	$681,895	$954,558	$2,259,581
Advance planning	423,186	323,458	99,728		
Investigation of existing projects	68,887	11,707	18,200	24,000	14,980
Total cost	7,868,556	3,815,614	799,823	978,558	2,274,561
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc			−46,584		
Total obligation program			753,239	978,558	
Allocation or estimate			753,239	978,558	

Engineering and economic investigations, detail by activity

Subactivity	Total estimated cost	Total to June 30, 1954	Program, fiscal year 1955	Estimated, fiscal year 1956	Balance to complete
Reconnaissance	$8,350		$8,350		
Basin surveys	2,670,531	$1,195,861	78,622	$183,500	$1,212,548
Project investigations	4,697,602	2,284,588	594,923	771,058	1,047,033
Total cost	7,376,483	3,480,449	681,895	954,558	2,259,581

Reconnaissance

The fiscal year 1955 cost program of $8,350 is for reconnaissance study of the irrigation potential of the Monmouth-Dallas project. Some activity is contemplated for fiscal year 1956.

Basin surveys

In fiscal year 1955, a cost program of $78,622 will consist of a continuation of work on the preparation of basinwide plans for the Clarks Fork Basin, completion of a basin study of the Snake River Basin and the initiation of a basin study of the upper Snake River Basin where pressure for irrigation developments and a limited supply of water has necessitated an overall evaluation of all potential projects in the basin. Work will also continue on the development of operating plans for multipurpose reservoirs constructed by the Bureau of Reclamation and the Corps of Engineers in the Columbia River Basin.

The fiscal year 1956 cost program of $183,500 will provide for a continuation of these studies in the Clarks Fork, Columbia, and upper Snake River Basins. The increase over fiscal year 1955 is primarily attributable to an expanded program in the upper Snake River Basin which is a direct result of the urgency of completing this study as soon as possible to provide guides for full basin development.

Project investigations

In fiscal year 1955, a cost program of $594,923 will finance feasibility investigations on 19 potential projects in this basin. Of this total, 8 will be studies being initiated or resumed and about 5 will be completed.

The fiscal year 1956 cost program of $771,058 for this activity will provide for a continuation of feasibility studies on some underway at the end of the prior fiscal year. In addition, work will be initiated on about six new investigations of high priority projects. Of these studies, eight will be completed.

Advance planning

Total cost, advance planning:	
Total estimated cost	$423,186
Cost to June 30, 1954	323,458
Program, fiscal year 1955	99,728
Program, fiscal year 1956	-------
Balance to complete	-------

In the Columbia River Basin, three authorized projects not under construction will be in the advance planning stage in fiscal year 1955. The cost program of $99,728 will provide for additional detailed studies, including preparation of final designs, and completion of the definite plan report. All of these studies are to be completed in fiscal year 1955.

Investigation of existing projects

Total cost, investigations of existing projects:	
Total estimated cost	$68,887
Cost to June 30, 1954	11,707
Program, fiscal year 1955	18,200
Program, fiscal year 1956	24,000
Balance to complete	14,980

During fiscal year 1955, studies will be underway on four existing Bureau projects to ascertain the need for rehabilitation or water-conservation improvements and for economic studies and contract negotiations associated therewith. Of these studies, work on two of the projects will be completed.

Of the 2 studies uncompleted in fiscal year 1955, 1 will be completed and 1 will be continued in fiscal year 1956 with the cost program of $24,000. In addition, similar studies will be initiated and completed on two other existing projects which have been in operation for many years.

Justification

During the period between 1940 and 1950, the population of the Pacific Northwest increased by over 33 percent and is continuing to expand. During this period the economic development of the area failed to keep pace with the population increases and the region is characterized by inshipment of manufactured

goods and outshipment of bulk commodities. Agricultural development also fell far behind and the farm produce now falls far short of meeting the regional requirements. As a result, there is a pressing need for adding hundreds of thousands of acres to the present cropland in the immediate future. Almost all of this expansion will have to be in the form of new irrigated lands.

Fortunately there are many potential opportunities to create these new developments in the Columbia Basin. However, in past years practically all of the reservoir sites at which flows could be regulated by works of small or modest scope and at a low unit cost have been developed. This situation makes future development of the potential water resources of the area more costly and complex. Also, as the water supplies are developed and the pressure for additional supplies increase, competitive relationships between prospective uses become more involved and more difficult to establish in a balanced and beneficial ratio.

The pressure that is mounting throughout this area for further expansion of its agricultural base by developing new land has been augmented by the current drought that is facing many parts of the West, including the Columbia Basin. Many existing projects, both privately and federally constructed, are in desperate need of additional water to augment presently inadequate supplies that are seriously limiting crop production.

Under these conditions, careful planning of water resources developments in this area is essential to insure full development of the capabilities of the water resources. Because of the needs existing today it is also important that the planning go forward as rapidly as possible because of the unavoidable and lengthy time element between start of an investigation and completion of construction.

Schedule of general investigations program, fiscal years 1955 and 1956—Columbia Basin

Program item (1)	State (2)	Total estimated cost (3)	Cost to June 30, 1954 (4)	Fiscal year 1955 program (5)	Fiscal year 1956 estimate (6)	Balance to complete investigation (7)	Remarks (8)
Engineering and economic investigations:							
Reconnaissance: Region 1: Monmouth-Dallas project.	Oregon	$8,350		$8,350			Reconnaissance study will be made to determine irrigation potentialities and municipal water-supply requirements of the area and to determine if a feasibility study should be instituted. Report to be completed in current fiscal year.
Basin surveys: Region 1:							
Clark Fork Basin	Montana-Idaho	174,000	$98,120	15,900	$18,000	$41,980	Investigations needed to prepare multiple-purpose basin plan for this subbasin of Columbia River Basin (including study of alternative sites in lieu of potential Glacier View and Paradise Reservoirs) and to select individual projects for authorization or for further investigation.
Columbia River Basin	Idaho-Wyoming-Utah-Washington-Oregon-Montana-Nevada.	1,390,000	995,360	32,572	65,500	296,568	Columbia River Basin studies for comprehensive plans particularly for power and flood control, for important Army and Reclamation dams in operation and under construction or authorized; and in connection with Reclamation's responsibilities stemming from the Army-Interior agreement on comprehensive development of the Columbia River Basin, and also participation in the coordination and planning of the Columbia Basin Inter-Agency Committee.
Snake River Basin	Idaho-Oregon	106,531	102,381	4,150			Investigation terminated in fiscal year 1954 with the exception of the completion of a ground-water study by the Geological Survey in fiscal year 1955. Information and material will be collected, assembled, cataloged, and filed for future reference.
Upper Snake River Basin	Idaho-Oregon-Wyoming.	1,000,000		26,000	100,000	874,000	Investigation to evaluate the undeveloped land and water resources of the Upper Snake River Basin where irrigation has been developed to a high degree already. Further development should be on the basis of basinwide plans to insure full utilization of the resources. Potential projects will be selected for subsequent investigations to establish feasibility.
Subtotal, basin surveys		2,670,531	1,195,861	78,622	183,500	1,212,548	

Project investigations: Region 1: Big Wood River project	Idaho	61,000	21,840	29,103	9,344	713	Reconnaissance of area completed. Collection of water supply data in progress. Investigation of ground water to be initiated in fiscal year 1955 and completed in fiscal year 1956 to determine ground-water potential. Feasibility studies held in abeyance pending results of ground water studies.
Chief Joseph Dam project: Greater Wenatchee division.	Washington	145,602	91,500	48,961	5,141		Work in progress on investigation of potential irrigation development by pumping from Columbia River or from Lake Wenatchee. Report scheduled in fiscal year 1956.
Okanogan Similkameen division.		75,000			50,000	25,000	Investigation to determine feasibility of furnishing supplemental water to 19,800 acres and a full supply to 7,200 acres. Must be undertaken in fiscal year 1956 because continuing upstream developments in Canada and recurring periods of low runoff are threatening continuation of present irrigation.
Coburg project	Oregon	72,000	13,348	35,761	20,300	2,591	Reconnaissance of area has been made. Studies started in fiscal year 1955 to determine feasibility of providing irrigation water to about 10,000 acres of new land as the initial development of an overall area of 80,300 acres. Work to be substantially completed in fiscal year 1956.
Dayton project	Washington	98,000	32,506	55,544	9,950		Investigations deferred because of lack of funds; to be resumed in fiscal year 1955 and completed in fiscal year 1956. Project needed to supply supplemental and new irrigation water and flood control.
Deschutes project, supplemental storage.	Oregon	286,000	276,977	9,023			Investigation in progress to determine possibilities of furnishing needed supplemental irrigation water; report scheduled in fiscal year 1955.
East Long Tom project	do	69,000	14,789	24,084	27,500	2,627	Reconnaissance of area has been made. Studies started in fiscal year 1955 to determine plan for providing a water supply for about 13,650 acres of land where drier-than-average summers have curtailed crop production. Water would be obtained from the existing Fern Ridge Reservoir. Report to be substantially completed in fiscal year 1956.
Grande Ronde project	do	275,000	267,583	7,417			Investigation of multiple-purpose project. Wrap-up scheduled for completion in fiscal year 1955; completion of investigation deferred indefinitely because of lack of local interest.
Hopewell project	do	64,000	10,350	28,410	23,600	1,640	Reconnaissance completed. Feasibility investigation started in fiscal year 1955 to examine possibilities of developing about 4,400 acres of new land.
Johnny Counts project	Wyoming-Idaho	258,000			114,682	143,318	Irrigation in upper Snake River Basin is highly developed at the present time and any substantial increase is going to hinge on provision of upstream storage. Investigation of possible storage sites to be initiated in fiscal year 1956 and completed fiscal year 1957.

Schedule of general investigations program, fiscal years 1955 and 1956—Columbia Basin—Continued

Program item (1)	State (2)	Total estimated cost (3)	Cost to June 30, 1954 (4)	Fiscal year 1955 program (5)	Fiscal year 1956 estimate (6)	Balance to complete investigation (7)	Remarks (8)
Engineering and economic investigations—Continued							
Project investigations: Region 1—Continued							
Jordan Valley project	Oregon-Idaho	$97,000	$12,484		$66,450	$18,066	Investigation should be started in fiscal year 1956 to provide plan for the development of 9,000 acres of new land. Local interest is high as irrigation water is badly needed.
Little Wood River project	Idaho	66,000		$62,233	3,767		Investigation started in fiscal year 1955 to determine possibilities for needed rehabilitation of existing irrigation facilities. Report to be completed in fiscal year 1956.
Mann Creek project	do	80,000	48,678		19,364	11,958	Investigation should be started in fiscal year 1956 to develop plans to provide a firm water supply to about 4,000 acres of land now badly in need of late season irrigation.
Medicine Lodge project	do	97,000	6,704	12,150	71,950	6,196	Reconnaissance of area made and area found to be receiving inadequate irrigation. Studies started in fiscal year 1955 to determine feasibility of providing supplemental water.
Milton-Freewater project	Oregon-Washington.	195,000	168,970	24,490	1,540		Investigation in progress to determine feasibility of providing needed supplemental irrigation water by pumping from pool behind McNary Dam and the development of new lands through storage on the Walla Walla River. Report will be completed in fiscal year 1956.
North Bench project	Idaho	115,000	5	43,628	34,800	36,567	Reconnaissance of area made. Investigation started in fiscal year 1955 which will provide plans for the development of 20,000 acres of new land.
Rathdrum Prairie project: Eastern division, Hayden Lake unit.	do	21,000		21,000			Investigation of rehabilitation of existing irrigation system for 1,050 acres which is in bad condition. To be completed in fiscal year 1955.
Sandpoint project	do	57,000			13,500	43,500	Reconnaissance type studies should be started later in fiscal year 1956 to delineate project area and determine method of supplying water to about 8,000 acres of land. Construction of Albeni Falls Dam and the holding of Pend Oreille Lake at maximum elevation through most of irrigation season will enhance prospects of a feasible project.
Spokane Valley project	Washington	50,000		30,000	20,000		The irrigation facilities serving the 10,000 acres of this project have deteriorated to the point where extensive rehabilitation is necessary to prevent abandonment of most, if not all, of project in near future. Irrigation urgently needed to establish most feasible plan of rehabilitation.

							project have deteriorated to the point where extensive rehabilitation is necessary to prevent abandonment
							of most, if not all, of project in near future. Irrigation urgently needed to establish most feasible plan of rehabilitation.
Snake River project: Mountain Home division	Idaho-Oregon	1,003,000	668,531	86,610	213,000	34,859	Investigation initiated late in fiscal year 1953 to determine feasibility of using ground water in exchange for Boise River water for the Mountain Home diivsion. In fiscal year 1954 a report on the Hillcrest unit as an initial phase of this development was completed. Report on the overall alternative plan will be completed in fiscal year 1955. In addition studies of another proposal involving a dam on the Snake River at the Guffy site will be initiated in fiscal year 1955 culminating in a reconnaissance type report early in fiscal year 1956 and a full feasibility report in fiscal year 1958.
Mountain Sheep division		207,000	170,750	36,250			Investigation being made by Corps of Engineers to develop upstream multipurpose storage in the Columbia River system to serve both flood control and power. The flood-control storage is critically needed as part of the main control plan for the Columbia. The upstream storage would permit at-site generation, but more important, it would firm downstream generation. Funds scheduled for Bureau are cooperative studies. A feasibility report was completed in fiscal year 1954. Expenditures in fiscal year 1955 are for needed additional foundation explorations.
Tualatin project	Oregon	142,000	108,344	21,656	12,000		Investigation resumed in fiscal year 1954 in order to provide plans for the development of 25,000 acres of new land. Report will be completed in fiscal year 1956.
Wapinitia project: Juniper division.	do	50,000	47,699	2,301			Investigation initiated in 1953 to examine means of providing much needed supplemental irrigation water; report scheduled for completion in 1955.
West Long Tom project	do	73,000	1,032		49,500	22,468	Investigation should be started in fiscal year 1956 to utilize available storage waters in existing Corps of Engineers reservoir.
Yakima project, supplemental storage.	Washington	148,000	135,068	11,932	1,000		Investigation in progress. Report on this supplemental water project scheduled for completion early in fiscal year 1956.
Region 1 projects for which stream gaging only is active.		893,000	187,430	4,370	3,670	697,530	Eight investigations (Butter Creek, Paulina, Post, and Yamhill projects in Oregon, Lolo Creek in Montana, Birch and Bruneau in Oregon, and Walla Walla in Washington) on which stream gaging by the Geological Survey is only work in progress during fiscal year 1955 and fiscal year 1956.
Subtotal, project investigations.		4,697,602	2,284,588	594,923	771,058	1,047,033	
Total, engineering and economic investigations.		7,376,483	3,480,449	681,895	954,558	2,259,581	

Schedule of general investigations program, fiscal years 1955 and 1956—Columbia Basin—Continued

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Advance planning: Region 1:							
Chief Joseph Dam project: Foster Creek division.	Washington	[1] $141,398	[1] $91,398	$50,000			The lands of this division lie in an area at the confluence of the Okanogan and Columbia Rivers near Bridgeport and Brewster. Source of water would be the Rufus Woods Lake, the reservoir to be created by Chief Joseph Dam, under construction by the Corps of Engineers, on the Columbia River. Project was authorized in July 1954. Development of this project would tend to stabilize and balance the economy of the area. A definite plan report will be completed during fiscal year 1955.
Michaud Flats project	Idaho	[1] 169,788	[1] 129,788	40,000			Project was authorized in August 1954. Storage water from American Falls and Palisades Reservoirs would be pumped from American Falls Reservoir to serve 7,077 acres. Ground-water wells would be utilized to serve an area of 3,958 acres. Rainfall is generally unsatisfactory for maintaining dry farming. The rapid growth of ground-water development in the area, coupled with the storage-water supplies soon to be available from Palisades Reservoir together with requests of landowner organizations in the area for irrigation development make it urgent that this project be constructed.
Minidoka project: American Falls power division.	do	112,000	102,272	9,728			When American Falls Dam was constructed, provision was made for the powerplant by constructing four 15-foot diameter penstocks through the dam. This recently authorized powerplant is needed to assure financial feasibility and increase power production to meet increasing demands for private irrigation pumping.
Total, advance planning		423,186	323,458	99,728			
Investigations of existing projects: Region 1:							
Arnold project: Rehabilitation survey.	Oregon	1,453	953	500			Rehabilitation survey of wooden flumes of Arnold Irrigation District scheduled for completion in 1955.
Boise project: Payette division: Financial adjustments	Idaho	14,000	2,020	1,000	$1,000	$9,980	Current program provides for economic studies and contract negotiation with Emmett Irrigation District. Investigations in future as required in districts of the division.
Water conservation studies		10,000			5,000	5,000	Study to determine most feasible methods of conserving water in Black Canyon Irrigation District.

Investigations in future as required in districts of the division.							
Water conservation studies		10,000			5,000	5,000	Study to determine most feasible methods of conserving water in Black Canyon Irrigation District.
Minidoka project:							
Financial adjustments		5,000			5,000		Investigation of repayment ability required for several districts of the project.
Rehabilitation survey		6,000			6,000		Survey required to determine extent and probable cost of rehabilitation of project works.
Owyhee project:							
Financial adjustments	Oregon	5,671	3,871	1,800			Revisions to be made in land classification maps as required by existing repayment contracts.
Rehabilitation survey		14,457	1,257	13,200			Survey required to determine extent and probable cost of rehabilitation of project works.
Yakima project: Sunnyside division: Rehabilitation survey.	Washington	5,000			5,000		Survey required to determine extent and probable cost of rehabilitation of project works in several districts of the division.
Umatilla project:							
Hermiston and West Extension Irrigation District, financial adjustments.	Oregon	200		200			Funds required for studies to make operative the repayment contracts approved by Congress in June 1954.
Unreserved space, McKay Dam, financial adjustments.		7,106	3,606	1,500	2,000		Investigations to determine most equitable manner for distributing by water rentals or sales of unreserved space in McKay Reservoir.
Total, investigations of existing projects.		68,887	11,707	18,200	24,000	14,980	
Total cost		7,868,556	3,815,614	799,823	978,558	2,274,561	
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.				−51,584			
Total obligations				748,239	978,558		
Method of financing:							
Allocation of appropriation				747,214			
Prior year balance available				1,025			
Contributions							
Allocation of appropriation					978,558		

[1] Includes cost of "Project investigations."

GENERAL STATEMENT

Mr. EVINS. Who will give the general statement in justification of General Investigations?

Mr. NELSON. Of the amount requested, $183,500 will be utilized to continue work on basinwide and subbasin surveys. That includes the Clarks Fork Basin, the upper Snake River Basin, and the main stem of the Columbia River. The bulk of the funds for investigations work in this basin, or $771,058, will be used to continue feasibility studies on about 20 projects, varying from very small individual irrigation projects up to rather complicated multiple-purpose projects containing irrigation benefits, power benefits, and in some cases flood control benefits. A small amount, $24,000, will be used to study existing projects that require rehabilitation or readjustment of repayment contracts.

I have a short statement that I can insert in the record.

Mr. EVINS. That will be satisfactory.

(The statement above referred to is as follows:)

GENERAL INVESTIGATION—COLUMBIA BASIN

Of the $5,175,000 requested for GI activities throughout the 17 Western States and the Territories of Alaska and Hawaii, we propose to use $978,558 in the Columbia River Basin. Of this amount, $183,500 will be utilized to continue work on the development of basinwide plans; $771,058 will be scheduled for feasibility studies; $24,000 will be used to study existing projects to determine the need for rehabilitation or improvement of facilities.

The investigations program for this basin has been carefully prepared and represents a practical program commensurate with the needs of the area. Expressions of such need by local residents and water users are now greater than any time in history. The Bureau of Reclamation has a number of responsibilities for continuing investigations related to the plan for comprehensive development of the Columbia River Basin. These responsibilities stem from recommendations in the departmental report, from the agreement between the Interior and Army Departments, and from actions of interagency committees in the Pacific Northwest who are concerned, in part, with development of the Columbia River Basin.

The Pacific Northwest is one of the most rapidly developing areas of the Nation, as can be seen by population increase of some 33 percent during the period 1940 to 1950. It is axiomatic that agricultural development of the Columbia Basin area must keep pace with the industrial and commercial development which has so markedly increased in the period since 1940. There is a pressing need to increase the cropland in the Columbia area in the immediate future. Nearly all of this expansion will have to be in the form of new irrigated lands. In addition to the new irrigation there is also urgent need for development of supplemental water supplies for areas already under irrigation. For the past several years the Columbia Basin as a whole has enjoyed annual water supply considerably above the normal amount. Considerable areas are faced with water shortage should a subnormal water year occur.

A subnormal year faces the farmers in the Columbia Basin this season. Precipitation as of April 1 is estimated to be 70 percent of normal and runoff 81 percent of 10-year average. The water situation is even more critical in specific subbasins such as that of Owyhee where the current water situation is some 32 percent of normal—the lowest in the history of that project. Immediate investigations of storage for alleviating the shortages are imperative for such existing private developments as that of the Jordan Valley, and the balance of the Owyhee River drainage, the Salmon Falls tract and Little Wood River in Idaho. Similar conditions exist in other subbasins of the Columbia area and the existing agricultural economies are threatened if supplemental water supplies are not investigated and developed promptly.

Fortunately there are many opportunities for water-resource developments in the Columbia Basin. In the main the projects of small or modest scope have been developed. The large projects which remain have multipurpose facets whether built or considered by the Federal Government, local governments or

private enterprise. It is imperative that all project functions be adequately considered to obtain the optimum development of available resources. As the water resources are developed and pressure for additional supplies increase, the need for overall consideration of the many competitive uses and the contribution that each development will make toward full utilization of the Basin's resources becomes increasingly important.

The proposed programs for fiscal year 1956 for basin studies include studies on the Clark Fork, the Columbia, and the upper Snake River Basins. The aggregate of $183,500 for these studies represents an increase of some $104,000 over the survey program for this year, fiscal year 1955. The major increase is in the upper Snake River Basin. It is here that basin irrigation development has already progressed to a high degree and further expansion hinges on the provision of additional storage capacity on the headwaters. To avoid a piecemeal approach which might interfere with the full use of the limited remaining water supply, it is necessary that a basin plan be established to guide the selection and development of future water-resource projects.

The major part of the Columbia River investigations is for feasibility studies of specific projects. For this amount of $771,058 studies will be continued or resumed on 17 potential projects and 3 new studies will be started. Of these studies to be underway in fiscal year 1956, 8 will be completed and reports submitted for consideration.

The studies on existing Bureau of Reclamation projects are 4 in number and the amount totals $24,000. These studies are to evaluate the need for rehabilitation or improvement of facilities. These existing projects which will be studied have been in operation for many years and the rehabilitation studies or improvement studies are necessary to fully protect the Government's existing investment.

UPPER SNAKE RIVER

Mr. EVINS. What is the status of present irrigation on the upper Snake River and what is the need for an additional $1 million for further investigation on those projects?

Mr. NELSON. The annual flow water supply of the upper Snake River is almost completely developed now and holdover storage will be required in the future. There are a number of existing, principally old private, developments that are seriously short of water, particularly in view of the intensive irrigation practices now being followed. A basinwide study is now required to determine the best use of the available remaining surface supplies, and also to investigate ground water potentials. On several important projects, such as the Owyhee River drainage, Jordan River, Wood and Weiser Rivers, there are still storage possibilities remaining, and the largest remaining project in that area, is the Mountain Home project which includes the Jensen division we referred to earlier.

REHABILITATION AND BETTERMENT OF IRRIGATION PROJECTS

Mr. EVINS. What responsibility does the Bureau have to rehabilitate irrigation projects that the water users have allowed to deteriorate?

Mr. NELSON. Some of the projects were built as long as 30, 40 and 50 years ago when construction techniques were not as good as they are now, and the repairs required in some instances are of such magnitude that they cannot be financed by annual collections available to the water users. Usually long-term financing in the type of repayment contract available through the Bureau is required to do the job.

Mr. DEXHEIMER. Our responsibility actually stems from the 1949 act providing for rehabilitation and betterment.

Mr. EVINS. After those projects are built, then the local people are supposed to maintain them; but if they deteriorate, then the Bureau of Reclamation comes back and rehabilitates them?

Mr. DEXHEIMER. No, sir; it is not essentially deterioration. This rehabilitation and betterment is based on their age and the greater need for savings of water and improvements to meet the demands of the increased agricultural production.

Mr. NELSON. If I might cite 1 example, in the Rogue River Basin, there are 2 districts called the Rogue River and Medford Irrigation Districts which have wooden flumes built 35 to 40 years ago at the time when metal flumes were not commonly used. Those flumes have reached about the end of their economic life and must be replaced by reinforced concrete or metal flumes.

Mr. EVINS. What are the review problems in the Minidoka project for which general investigation funds are needed?

Mr. NELSON. There are two dams, Jackson Lake Dam and American Falls Dam which, after a good many years' service, do require some repair of surface cracks and repair of piers. There are about 41 participating irrigation districts receiving water from these reservoirs. Some of them are paying only for storage; others are paying on distribution works along with the storage. About 26 of them have already paid their share of the construction costs in full. It is necessary to evaluate just exactly what needs to be done in the way of repairing both structures and then a determination of an equitable distribution of the cost among those 41 entities. So it is primarily a job of allocating the cost to be repaid.

Mr. JENSEN. The rehabilitation program has been going on for some time and I never was quite satisfied with it, I might say. Here is a situation where you have a project, maybe, that has been going on, built 40 or 50 years ago, and the project is pretty well paid out. Then, of course, they need rehabilitation and repairing; so they make a request for 1 million or 2 million dollars and that money is interest free.

Then there is another thing that I never could quite understand. The Bureau permits them to pay that loan off over a period of many years; as many as 40 years. So we are in the business where we are wet-nursing a lot of folks. I possibly should not use that phrase; but I never could understand just why the Government had a great obligation there that we should accept. We have lived up to our original contract and then here they come along and we make them another contract, as I said, interest free.

Now the Interior Committees and Congress have leaned over backward to be very liberal with the water users and irrigators; but, for the life of me, I cannot see why the Federal Government is called on to shoulder this responsibility that I have just explained. It is true they pay it back into the Federal Treasury over a period of years, every dime, but they do not pay any interest. It is also necessary for the taxpayers, of course, to pay the administrative cost, that part that is not charged to the project.

I have contended for years that these water users certainly could sign a joint note at most any bank that would loan them that much money and get the money on their own responsibility, instead of coming to our Federal Government and asking us to continue loaning them money and carrying that project from now on. Then when

the 40 years are up, it will need another rehabilitation and betterment program; so you never get through with it; you never unload it.

Now, if anybody has anything to say in rebuttal to that argument, I would like to hear it. This is not a new thing with me; it has been going on for 13 years so far as I am concerned.

Mr. EVINS. I do not know the answer nor do I propose to answer, but it is my information, of course, that the Government invests a huge sum of money in these reclamation projects. The farmers, landowners, and other people need the use of the water and no individual would be able to expend the necessary moneys to repair these canals; no one individual would have enough means to do that. So because the Federal Government already has an investment in it and it is serving the agricultural interests of the country, someone must repair these projects when it is needed.

Am I correct in assuming or understanding that the power revenues, in many instances, are being used to pay for some of the cost of repair and betterments? Somebody has to pay for this repair and the individual farmers are not able to do it. Can you enlighten the committee on just how these repairs are being paid for in addition to the appropriations?

Mr. DEXHEIMER. I would like to discuss that; not that this is a definite answer for Mr. Jensen, but because that seems to be the policy of the Federal Government and the Congress and has been for a great many years; we just try to follow out that policy in our part of doing the work.

However, as the chairman pointed out, in many cases the entire repayment has not been made on those irrigation projects because the time for payment has not yet expired.

Mr. JENSEN. You mean the original contract?

Mr. DEXHEIMER. The original contract. And we ask this Committee on Appropriations each year for certain funds to carry on a limited amount of inspection of these projects to be sure they are being maintained and that there is not something going wrong with them which might cause failure and thereby jeopardize the investment of the Federal Government in each project.

In addition to that, as we pointed out, there are such things as old wooden structures that had originally only a useful life of 35 or 40 years and were not expected to go beyond that time. The reconstruction of those, of course, is essential.

Now the repayment of these irrigation costs is usually based on the ability of the farmers in the area to pay the balance of the cost. Then with the exception of such things as flood control and navigation, which are non-interest-bearing and nonreimbursable and, of course, are much greater in overall expenditures than those for the irrigation features, the rest of it is all returned either by municipal water or power sales, which investments, of course, do carry interest—at least to the same extent that the Federal Government pays interest on the money that it uses. And then the revenues from these projects could conceivably continue to come into the Treasury long after the repayment on any particular project has been made.

It has been the policy to continue making loans and extending repayment contracts, over and beyond the original contract. Sometimes to pay off that additional loan the contracts are extended for periods beyond the original length of time for repayment; sometimes

they may extend the repayment for a number of years. But they are based on the ability of the farmers to repay on a yearly basis, and the number of years is set accordingly. The Congress has nearly always approved these repayment contracts and extensions thereof. Costs of rehabilitation and betterment work is in no way subsidized by power revenues.

Mr. EVINS. If I may interrupt, what experience have you had with farmers being unable to pay once the irrigation projects are underway? In other words, they are more than happy to get the water, and are they ready to pay for it as soon as it can be supplied?

Mr. DEXHEIMER. We have had some difficulty, particularly during depression times when farm prices were low and the sale of farm products was limited, and in some cases, we have renegotiated those contracts, reducing the annual payments and extending the period of time for final payment. But in each case the repayment contracts have been presented to the Congress for approval. I can say that as of now, after these renegotiations have been carried on for a number of years, we are approximately 98 percent current in the payments due from the water users under those contracts.

Mr. EVINS. With the amount the water users pay and are able to pay, they are not in a position to repair and rehabilitate.

Mr. DEXHEIMER. That is correct. Their repayment ability determines repayment under their contract. It is usually based on their operation and maintenance cost plus the construction charges.

Mr. EVINS. How much money derived from the sale of power is used for this betterment program?

Mr. DEXHEIMER. None. Even in the original contracts we do not directly use power revenues. All of that money is covered into the Treasury and is subject to appropriation by Congress each year, and our operation and maintenance funds must be appropriated each year. The rehabilitation and betterment funds are also made available by appropriation. We cannot directly use our revenues for any of our work.

Mr. EVINS. In addition to the income from the water users, the only other income you have is substantially that from the sale of power, which is covered into the Treasury?

Mr. DEXHEIMER. And from the sale of water; although that is not a substantial figure.

I would like to point out to the committee that last year the reclamation program was financed to the extent of about 50 percent from the reclamation fund. In other words, we had over 50 percent of the total expenditures financed by appropriations from revenues covered into the Treasury. For this reason part of our expenditures, namely, that part appropriated from the reclamation fund, comes from sources other than from the taxpayers directly. They come from western land and oil royalties which are still being covered into the reclamation fund, so that actually less than one-half of our annual appropriations is financed out of general funds of the Treasury, requiring any amount of tax revenues, sale of bonds, or whatever sources the Treasury might use to finance the general fund.

Furthermore, I would like, Mr. Chairman, to mention the contribution that some of these projects make to the Treasury, to the Nation as a whole, and to its economy. We had prepared at the request of the Committee on Interior and Insular Affairs of the House last year

a booklet which was published as House Committee Print No. 27, which shows that each one of these farms developed in reclamation projects not only supports that family, but approximately twice as many people in the local area, and the individual on each one of those farms contributes an average of $1,250 in Federal taxes which would not otherwise be available to the Treasury. On many of our projects which are well established, the community of farmers and businesses connected with them contribute more in Federal taxes alone each year than the entire Federal investment in the project.

So that, rather than being a drain on the overall taxpayers of the Nation, each one of these projects as it develops becomes a great asset to our national economy, not only in the actual funds contributed to the Treasury, but in the fruits, vegetables, and other things that are grown and shipped and used under better standards of living.

Mr. JENSEN. Of course, that is one of the main reasons why Congress has always been very liberal in appropriating money for these reclamation projects. The fact still remains, however, regarding this rehabilitation and betterment program, that operation and maintenance takes quite a large sum or percentage of the amount the water users pay on these additional contracts for betterment and rehabilitation programs. So it naturally takes a good many years to pay off a lot of them.

Now, I do not want to be unreasonable and I try not to be. I am very sure, however, that there are some of these rehabilitation and betterment projects where the water users get interest-free money from the Federal Government, that would be better off in the long run if they would finance their rehabilitation and betterment programs by their own resources. There are some projects, without a doubt, which cannot handle that privately; but I still say that we have been quite lax in not screening these projects as carefully as we should and pick out those that cannot carry on with their own resources as against those that can.

(Discussion off the record.)

COMPARISON OF PER ACRE WATER CHARGE AND INCOME PER ACRE FROM IRRIGATION

Mr. EVINS. The Minidoka project, under construction, has annual water charges, and the total cost that is paid by the farmer is $10.85 per acre; whereas the gross crop income per acre resulting from the irrigation project is $149 per acre. In other words, the cost to the farmer is $10.85 per acre and he gets income of $149 per acre.

Mr. NELSON. I will supply a statement for the record which will clarify this picture.

(The material referred to follows:)

EXPLANATION OF PER ACRE INCOME AND ANNUAL WATER CHARGES ON THE MINIDOKA NORTH SIDE PUMPING UNIT

The annual water charge on the Minidoka north side pumping unit of $10.85 includes an amount of $8.20 for operation and maintenance and $2.65 for application against the construction costs. The charges assessed for construction are in accordance with the Reclamation Act of 1939 which provides that establishment of charges take into account all of the costs of production including interest, labor, etc., and that the charge be based on the true ability of the farmer to pay. The income per acre of $149 appears to be misleading particularly during the early stages of development. This amount includes all of the costs of production which in a fully developed farm may equal 40 to 60 percent of the total gross crop

income. This gross crop income includes the value of those products harvested and retained on the farm for feed to livestock on which the income is delayed. Also we should bear in mind that in the early years of developing one of these farm units costs will be excessive in terms of returns by reason of the need for clearing sagebrush which may cost $5 to $6 per acre, heavy leveling of some of the farm area which is estimated to cost $20 to $30 per acre, smoothing or light leveling of the land at $5 per acre, the construction of farm ditches and water-control structures at about $10 per acre, the investment in essential farm machinery of $5,000 to $6,000, the developing of domestic water systems which may cost as much as $1,200 to $1,600, and the construction of a farm dwelling and of other farm buildings.

AGRICULTURAL DEVELOPMENT IN THE COLUMBIA BASIN

Mr. HAND. Mr. Commissioner, I call your attention to page BR-6 under general investigations and the concluding paragraph on that page under the heading of "Justification" refers to 1 or 2 matters in which I am interested. First it says:

The region is characterized by inshipment of manufactured goods and outshipment of bulk commodities.

That is not unusual, is it? That would be characteristic of most of the areas of the United States, is not that so?

Mr. DEXHEIMER. With perhaps the exception of a few of the industrial centers in the East; yes, sir.

Mr. HAND. It also makes the statement that:

Agriculture development also fell far behind and the farm produce now falls far short of meeting the regional requirements.

That also is true of most of, or a great many of the sections of the country?

Mr. DEXHEIMER. A great many sections, perhaps, with the exception of the Southwest, where a large part of the fruit and vegetable production is shipped out.

Mr. HAND. Countries even with a considerable amount of agricultural development still usually fall short of meeting their own requirements if their populations are very considerable. That is generally the case in the East.

Mr. DEXHEIMER. Yes, sir.

Mr. HAND. How much of the crops, if any, that this land is supporting and that the new land is designed to support, are crops that are supported by the Government under the so-called parity program?

Mr. DEXHEIMER. In this general area in irrigated agriculture I think that there would be practically none of them, with the possible exception of potatoes, and I do not know to just what degree the present support program applies to potatoes.

Mr. HAND. Is it mostly garden produce and truck crops, such as lettuce and beans?

Mr. DEXHEIMER. No, sir; not up in the Northwest. It is largely sugar beets and hay for stock feeding, and orchards and small grains largely used in feed or in the manufacture of beer and other commodities of that type.

FEASIBILITY OF IRRIGATION UNDER 1,000 ACRES

Mr. HAND. In a hasty glance at some of the details in the back of these justifications I note some projects which are as small as 1,000 acres or less. Are many of those included in your studies of irrigation projects?

Mr. NELSON. No, sir; they are not.

Mr. HAND. There are some, are there not?

Mr. NELSON. I have a map here which will illustrate the situation. One point that has not been brought out is that the region is largely cut up by mountain ranges and rivers, and agricultural opportunity is largely restricted. Early development was primarily extractives such as lumbering and mining, and the agricultural opportunities are confined either to benches along the rivers, or the inland plateau areas. The Columbia Basin and the Snake River Plain are really the largest agricultural areas in the entire region.

The rest are rather narrow mountain valleys with a few thousand acres scattered up and down along the reaches of the rivers with very costly works, that is, as far as the individual is concerned, for irrigation, and they farm smaller farm units than is customary in the more humid areas. For example, an average irrigated farm on the Yakima project is about 45 acres, and usually between 45 to 100 or to 160 acres is the top limit for an irrigated farm in the basin.

Mr. HAND. Generally speaking, it is not economically feasible, is it, to plan for an irrigation system which, when completed, will irrigate only 1,000 acres of land?

Mr. DEXHEIMER. No, sir; I do not believe it would be for us, generally speaking.

There are a great many individual irrigation projects in such areas as the Willamette Basin, where individuals, either by pumping from wells, or pumping from a stream will irrigate by sprinkling small tracts of land, and in this area most of the smaller-sized development is done in that manner.

GRANDE RONDE PROJECT

Mr. HAND. I see under remarks on the Grande Ronde project in Oregon the following:

> Investigation of multiple-purpose projects scheduled for completion for fiscal year 1955. Completion of investigation deferred because of lack of local interest.

I note in connection with those remarks that the cost of the study of that project up to June 30, 1954, has been $267,583. During the expenditure of that quarter of a million dollars was it apparent that the local interest was not there? My question really is, Why did you spend that money until you were satisfied of the local interest and the local cooperation?

Mr. NELSON. The original investigation was started in 1935 during the last drought, and conditions were very dry.

The natural flow of the Grande Ronde River is overappropriated and the investigation which took place during that year and succeeding years was at the request of local interests.

The difficulties now are not a lack of a desire but a need for better distribution of water. There is a question of how best to use water in consideration of existing water rights.

Some folks have early natural flow rights, and some folks take advantage of a high water table where drainage might be required, and lastly, of course, there are possible combinations of irrigation, using stored water in reservoirs that might also have flood-control benefits.

So, it has been a question of working out coordinated plans, and our part of that has been to develop cost estimates and engineering plans, insofar as irrigation is concerned.

This map here is intended to give you some idea of the topography as well as the river drainages of the area.

The green areas are the areas now under irrigation, and you will see that they are scattered.

The yellow areas are the areas that are under investigation or are the remaining projects which are possible of future development.

Mr. HAND. In any event, you are not going forward with the irrigating, and you are not requesting any money during this fiscal year; is that correct?

Mr. NELSON. No, sir.

CONSTRUCTION, BUREAU OF RECLAMATION

MICHAUD FLATS PROJECT, IDAHO

Mr. EVINS. Under "Reclamation construction," the Michaud Flats project in Idaho is new. We will insert the prepared justification at this point.

(The matter referred to follows:)

MICHAUD FLATS PROJECT, IDAHO, ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$3,955,712
Total obligations to June 30, 1954		----------
Total obligations, fiscal year 1955		----------
Allotment, fiscal year 1956	$520,000	
Total obligations, fiscal year 1956		520,000
Balance to complete		3,435,712

Work proposed, fiscal year 1956

American Falls pumping plant ($80,000): Preconstruction fieldwork will be initiated and completed during the year in order that specifications can be prepared and issued in time to permit the award of contracts at the beginning of the following fiscal year. The pumping plant is the key feature of the Michaud Flats project and is scheduled to be completed before the 1958 irrigation season.

Deep wells for canals and laterals ($100,000): Fieldwork will be completed, specifications issued, and a contract awarded for drilling 15 deep wells. Progress payments will be made as required. These wells are scheduled to be completed in time for use during the 1958 season.

Deep wells for sprinklers ($68,000): Fieldwork will be completed, specifications issued, and a contract awarded for drilling 10 deep wells. Progress payments will be made as required. These wells are scheduled to be completed in time for use during the 1958 season.

Main canal west ($27,000): Preconstruction work will be carried out and a construction contract awarded in sufficient time to permit completion concurrently with the pumping plant.

Main canal east ($87,000): Preconstruction work will be carried out and a construction contract awarded in sufficient time to permit completion concurrently with the pumping plant.

Laterals from main canal west ($22,000): Surveys will be undertaken and specifications issued in order that construction may be started early in the following fiscal year, leading to completion for joint use with the canal system.

Laterals from main canal east ($24,000): Preconstruction work will be completed in order that a contract may be awarded in the following fiscal year and east laterals placed in service jointly with the main canal east.

Lateral main lines for sprinklers ($70,000): Investigations will be completed and a contract awarded for these laterals to permit construction to proceed concurrently with the wells being drilled for the sprinkler system.

Drains: Work on these facilities is dependent upon the determination of the project drainage requirements.

Distribution lines (electric): No work will be scheduled on the distribution lines pending the outcome of negotiations for wheeling arrangements.

General property ($20,000): A garage, warehouse and shops will be constructed in the town of American Falls for use by the construction forces in carrying out construction operations.

Mr. EVINS. Can you give us a general statement on this project?

Mr. NELSON. The Michaud Flats project, which is located on the shore of American Falls Reservoir on the Snake River, near Pocatello, Idaho, will use a water supply that has been made available in the Palisades Reservoir, which is now under construction, and in American Falls Reservoir which was completed in 1927.

The project provides for the development of about 11,000 acres of land. Part of this acreage is now dry farms along the shores of American Falls Reservoir, and all will be irrigated partly by pumping water out of the Snake River, and partly by pumping from wells.

The total cost of that development will be repaid, about 65 percent of it by the water users, and about 35 percent by power revenues from the Palisades project.

That will be a new start in the fiscal year 1956.

Mr. EVINS. Will you point this project out on the map?

Mr. NELSON. Yes, sir.

I might also point out a few of the projects which are tied together with Palisades Dam and Reservoir which is located on the Snake River [indicating] near the Wyoming line.

The Michaud Flats project will be the yellow area shown here [indicating] on the banks of the American Falls Reservoir, near the city of Pocatello, Idaho.

The Minidoka North Side project, which is also a part of the Palisades authorization, is located north of Burley, and both of these will obtain their water supply in part from the Palisades Reservoir and American Falls Reservoir.

Mr. EVINS. What is the status of the plans on the Michaud Flats project?

Mr. NELSON. This year's allocation of advance planning money is enabling the completion of design and specifications and the completion of the definite plan report. A repayment contract will be executed with the water users by the end of this fiscal year, or early in the next fiscal year.

REPAYMENT CONTRACTS

Mr. EVINS. The repayment contracts have not been executed as yet?

Mr. NELSON. No, sir. We anticipate no difficulties, and the draft will be in the hands of the irrigation district soon.

Mr. EVINS. When is it planned that the repayment contracts will be executed?

Mr. NELSON. The repayment contract will be executed before any construction funds are spent. We expect to have the repayment contract executed shortly after July 1, 1955.

Mr. HAND. No construction has been undertaken here at all as yet; is that right?

Mr. NELSON. No, sir; other than for storage which is built into American Falls and Palisades Reservoirs.

About $475,000 of cost will be picked up by the water users in storage costs.

Mr. HAND. What is the general nature of those 11,000 acres which are proposed to be served by this project, and what crops are those lands designed to produce?

Mr. NELSON. The 11,000 acres are largely sage brush lands which are used for grazing. Part of them have been dry-farmed with yields running about 10 bushels to the acre, and during extremely dry years no yield at all.

Mr. HAND. How will they be used if irrigated?

Mr. NELSON. If irrigated they can be used for growing alfalfas, stock raising, sugar beets, and general irrigation farming in small units.

Mr. HAND. Do you have any estimates as to the present value per acre of this land?

Mr. NELSON. Yes, sir; the dry lands without a water right are usually priced at $10 to $18 an acre.

Dry land which is suitable for wheat growing is sometimes higher. I would say that those lands on which there has been some development are worth about $80 an acre now, with about $18 an acre for the sage brush.

Mr. HAND. What is this project designed to cost?

Mr. NELSON. $4,600,000.

Mr. HAND. How much of that cost is allocated strictly to irrigation?

Mr. NELSON. All of it is allocated to irrigation.

Mr. HAND. So that the cost per acre is just a matter of dividing the 11,000 acres into that $4,600,000.

$417 an acre I think my sheet shows.

Mr. NELSON. Yes, sir.

Mr. HAND. So, it actually appears that we are spending some $417 per acre on lands which are presently estimated to be worth from $10 to $18 per acre and which, of course, would be worth more if irrigated?

Mr. NELSON. Yes, sir.

Mr. HAND. How much more?

Mr. NELSON. The estimated crop returns will average about $80 per acre a year, which would give the lands a value when irrigated of from $600 per acre up, depending on the amount of improvements that the water user puts on the farm. The water user will wind up with an investment that will equal the Government's over the long pull.

Mr. HAND. You cannot capitalize the market value of farmland on the basis of its production, can you? It is rather sensible business method of doing it, is it not, but you cannot do it that way.

Mr. NELSON. Yes; I realize that.

Mr. HAND. If you could, the land in New Jersey would be worth about $3,000 an acre, and I do not think you can get that for it.

Mr. NELSON. These farms out there are running about $800 to $1,000 an acre, the irrigated farms.

MINIDOKA PROJECT

Mr. EVINS. The next project is the Minidoka project. The estimated total obligations on this project are $10,514,000.

The allotment requested for 1956 is $2,200,000.

Mr. Reporter, insert at this point in the record pages 171 and 172 of the justifications.

(The matter referred to is as follows:)

MINIDOKA PROJECT, NORTH SIDE PUMPING DIVISION, IDAHO—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$10,514,000
Total obligations to June 30, 1954	2,146,160
Allotment, fiscal year 1955	1,900,000
Prior year balance available	25,000
Total obligations, fiscal year 1955	1,925,000
Allotment, fiscal year 1956	2,200,000
Total obligations, fiscal year 1956	2,200,000
Balance to complete	4,242,740

Work proposed, fiscal year 1956

Main pumping plant, unit A ($373,000): Construction will continue and progress payments will be made under a prime contract awarded in fiscal year 1955 for the erection of the pumphouse, the penstock and the installation of the pumps and motors under contracts now in effect and for contracts to be awarded.

Canal, unit A ($5,000): Construction of the main canal started in fiscal year 1955 will be completed in fiscal year 1956 in time to convey water from the newly completed pumping plant to unit lateral systems.

Laterals, unit A ($255,000): These funds will provide for progress payments on a contract to be awarded early in fiscal year 1956 for the construction of the lateral facilities for 13,650 acres of land. Completion of the lateral system will be geared with completion of pumping plant and canal.

Drains, unit A: Work on the drains will be initiated after the unit facilities are placed in operation.

Relift pumping substations, unit A ($20,000): These funds will provide for progress payments and associated costs on a contract to be awarded early in fiscal year 1956 for the construction of the unit A relift pumping plant substations. These substations are required for stepdown power to the relift pump plants to be constructed as part of the lateral system.

Deep wells, unit B ($675,770): The will program for fiscal year 1956 includes the installation of the pumps, motor, and controls for group 3 (30 wells), complete the drilling and purchase the pumps, motors and controls for group 4 (32 wells), continue the drilling on group 7 (28 wells) and start drilling on groups 5 and 6 (47 wells). Work on the unit B facilities is geared to completion by the end of fiscal year 1957.

Laterals, unit B ($253,160): The fiscal year 1956 program will complete the replacement of the temporary wooden structures on group 1 with concrete and will provide progress payments for a contract to be awarded early in the fiscal year for the construction of the group 4 laterals. The construction of laterals is scheduled to provide conveyance of water to unit lands as the deep wells are completed.

Drains, unit B ($40,000): Drainage work consisting of drainage wells and open channels will be continued during fiscal year 1956 to prevent loss of land now being irrigated.

Pumping substations, unit B ($233,000): The fiscal year 1956 includes the completion of the pumping substations for group 3 wells, the purchase of transformers and accessory electrical equipment for group 4 wells, and progress payments on the construction of the group 4 pumping substations.

Transmission lines: These lines are to be constructed only if satisfactory wheeling arrangements cannot be made to provide power for the division deep wells and pumping plants.

General property ($171,750): The program for fiscal year 1956 provides for the construction of 3 more ditchrider houses, 2 pumping plant operator houses, truck,

car and equipment storage sheds. The program of O. and M. equipment purchases will be continued during fiscal year 1956. These facilities are required for operation of the irrigation works as completed.

Mr. EVINS. To what extent have you been able to turn over land in this project to the water users?

Mr. NELSON. That project is just in the initial construction phase. The entire 77,650 acres are public lands and all of the settlers are war veteran entrymen of World War II who will not acquire title until they have developed their farm under the regulations laid down in public notices. As soon as there are enough settlers on the project to form a bona fide irrigation district, then a repayment contract will be executed with them. When they are out of the development period they will be expected to take over and operate the project, but as of now 16,000 acres will be irrigated during the irrigation season of 1955 out of the 77,650-acre total. Last year 7,000 acres were irrigated. In other words, 9,000 new acres are being added this year, and 10,000 next year. We have about 50 applications for each farm unit that is available.

Mr. EVINS. What is the authority, or the justification, for increasing the irrigated acreage from 69,500 last year to 77,650? We would like to see it done, but what is the authority for it? Is that in the basic irrigation law?

Mr. NELSON. No, sir.

The project was authorized originally for 77,650 acres, composed of 64,000 acres of pump lands, and 13,650 acres of lands developed by pumping from the Snake River.

Mr. EVINS. How long has it been since this project was first initiated?

Mr. NELSON. The first expenditure was 3 years ago, that is, expenditure of construction funds, in the fiscal year 1953.

Prior to that time there were expenditures from general investigation funds to determine the feasibility of the project.

TRANSMISSION LINES

Mr. EVINS. I notice on page 172 of the justifications you state with respect to transmission lines:

> These lines are to be constructed only if satisfactory wheeling arrangements cannot be made to provide power for the division deep wells and pumping plants.

These transmission lines are for transmitting power for your own use?

Mr. NELSON. Yes, sir. This is entirely a pumping project. All of the water is either pumped from the ground or from the river. The energy for that project pumping will come from the Palisades Dam powerplant and will need to be delivered to the project area.

Mr. EVINS. The transmission lines were deleted, and contracts were negotiated with the Idaho Power & Light Co. some time back, but I understand that the Bureau of Reclamation supplies the transformers. Is not that a most unusual arrangement to have a contract with a private power company and, after you have contracted with them, for the Government to furnish the transformers? What do you have to say in justification of that action?

Mr. NELSON. I would agree with you that it would be an unusual arrangement if a domestic load were involved. These transformers

are required only during the irrigation season to step down from transmission line voltage to pumping voltage, which is much higher than the ordinary domestic loads.

In other words, the company would obtain no domestic load revenue whatsoever from those transformers. They are required only for serving the wells during the irrigation season, and we customarily do furnish transformers for wells as a part of the irrigation works.

The company is completing the distribution system to serve the other loads in the area at regular voltage and is furnishing the needed transformers for this service, and the company was given the opportunity of furnishing the transformers, needed for irrigation pumping, but refused to do so.

Mr. EVINS. Could not the next step be, if you contracted with a private power company to wheel the power and they say that you must provide the next transformers for them to say why did not the Government provide the trucks that service the line and provide the necessary transportation? It seems to me a most unusual arrangement to have such a contract and after you have entered into the contract for them to tell the Bureau of Reclamation that you must furnish the transformers.

Mr. NELSON. All that is involved here is a transformer on a pole at each well site. Usually there are not even roads into the transformer locations. The irrigation district will maintain all of the irrigation facilities required, including the transformers.

Mr. EVINS. Why are you using private power when the Palisades power is so closely available?

Mr. NELSON. We will be using Palisades power, not private power. Energy will be delivered under a wheeling contract with the private power company at primary transmission voltage, in this case 136 kilovolts, I believe, and then it is stepped down to 34 kilovolts out into the irrigated area over the company's distribution system.

Mr. EVINS. As I see the picture the Government owns the power, it produces the power, and they need power at another point, but they pay a private power company to transport it from their own plant down to the installations on this project and the Government also furnishes the transformers.

Mr. NELSON. No, sir; we retain ownership of the transformers. As part of the irrigation installation there will be a transformer and switch gear, a turbine pump and a motor at each installation.

Those are not used at all during the winter months. They are used only during the summer months, and, of course, the amount of pumping involved varies with the month of the season, so they must be operated by the irrigation district.

Mr. EVINS. Was it determined to be more economical to contract with the private power company to transport the power down there for this purpose than it would have been for the Government to build their own lines?

Mr. NELSON. I would say that the arrangement was worked out on the basis that the cost had to be equal to or less than would have been the cost had the Government provided the facilities. That was the basis for the negotiation with the power company.

Mr. EVINS. When was that negotiation made?

Mr. NELSON. The negotiation was made concurrently with the requirement for first pumping of the wells in the fiscal year 1954.

The Palisades Reservoir power was not available at that time. Therefore, it was necessary to wheel power from the Boise and Minidoka projects, and augment that by the purchase of power. However, the wheeling arrangement for the entire project has still not been signed. The contract has been negotiated and is in the Washington office for approval, but it is predicated on the above-described basis.

Mr. EVINS. Who is furnishing the power at the present time?

Mr. NELSON. Power is being furnished at the present time under an interim arrangement, by wheeling power from the Boise project, Anderson Ranch Dam, and from the existing Minidoka Dam, but that will not be sufficient to serve more than the present 7,000 acres. So, the construction program for the project has been designed to fit in with the availability of energy from Palisades Dam powerplant.

Mr. EVINS. Can you tell the committee how the cost factors in this proposed contract compare with other contracts that the Bureau of Reclamation has made for wheeling power?

Mr. NELSON. I can give you the cost for this one and, perhaps, the Commissioner can answer that further. In general the wheeling rate is 1 mill from Goshen station to the project area on the high-voltage side.

Mr. EVINS. What is the rate from Boise down at the present time?

Mr. NELSON. The rate from Boise is 1 mill and a half, 1 mill to Glenns Ferry, and a mill and a half east of that. That is over 100 miles. It runs about 1 mill for the first 100 miles.

Mr. EVINS. In other words, the Boise contract is about 2½ mills as compared with a mill for the full contract? It is the lesser contract, but you are furnishing transformers with the second contract. Is there anything else you are furnishing?

Mr. NELSON. No, sir, and this would be more if the company furnished the transformers, because that is a rather heavy investment for which there would be no other return than from irrigation. It would have to be amortized over a period of years, I presume, and I submit it would increase the water users' annual costs by taking that part of it out from under the capital investment in the project.

Mr. JENSEN. The contract you have in this instance is no different from any other contracts which you have where the Government furnishes the transformers. In most instances they like to furnish them and to have control of the transformers. I think that is a fair statement, is it not?

Mr. DEXHEIMER. It is not unusual, particularly here where the water users will operate and maintain not only the irrigation system, but the transformers and pumps that pump the water.

Mr. JENSEN. Yes.

Mr. EVINS. My point is that if you are going to generate power and if you are going to provide pumps and provide transformers, why not go ahead and just build the lines and let the Government own the whole system?

Mr. JENSEN. I think that can be answered very easily.

After all, private enterprise in every line of business is the thing that has made America great. After all, they do pay taxes into the local, State, and Federal Governments, which we need very badly. If we did not have them we would not be able to build any of these

plants for the Government. I never was averse to giving private enterprise at least an even break or, possibly, a little better break than you might give a Government agency, which pays no taxes.

We again get into this question of public power versus private industry, and we can go on and on and on.

After all, the Bureau of Reclamation operates under law. They cannot just go ahead and spend money unless it is proved that it is necessary.

Mr. EVINS. While the private power company is building the transmission lines I do not see why they should not also furnish the transformers. I am trying to give private enterprise more business to do.

Mr. JENSEN. I am not sure but what the private companies are willing to build those transformers. I am not sure about that. Did they offer to build them?

Mr. NELSON. In our discussions the price which was used was based on the service rendered.

Mr. JENSEN. Did not the private utility company, the Utah Light & Power Co., agree to build those transformers, and did not the Bureau of Reclamation feel that it was in the best interests of the Government that they should do it themselves?

Mr. NELSON. That is the reason these transformers are furnished by the Government——

Mr. JENSEN. Did not the private utilities agree to build those transformers?

Mr. NELSON. Yes, I believe they would have.

Mr. JENSEN. Of course, they did.

Mr. HAND. Did you say a moment ago that they had refused to build them?

Mr. NELSON. That is why I want to make my position absolutely clear on this. We started out on what gave us the best annual charge, as far as the water users were concerned.

In all honesty I believe I should say that if we insisted that the power company furnish the transformers they would have done so, but they would have, in return, asked the project to bear the cost of those transformers while they were remaining idle during the winter season when there was no other load other than the pumping load.

They are not of a size which can be used in the company's regular business. They are 34½ kilovolts, stepped down to around 2,300 volts.

There is no load in the area other than the domestic load for lights and farm uses and so forth. So, the cost for that service would have been based on the out-of-pocket cost to the company for a large installation that would have required a shorter period of amortization and at probably a higher interest rate than that available to the Government.

Mr. HAND. It comes down to this: That they would have built the transformers, but a contract involving the building of the transformers sort of placed the total cost of that on the land, and it did not meet with the approval of the Bureau. So, you built the transformers?

Mr. NELSON. That is right.

Mr. HAND. And that is part of your calculated cost involved in the return you expect to get?

Mr. NELSON. Yes, sir.

CONDITION OF LAND INVOLVED IN MINIDOKA PROJECT

Mr. HAND. Let me ask you a little about this particular area. You say that there are 77,000 acres involved here?

Mr. NELSON. Yes, sir.

Mr. HAND. Is there any population there now?

Mr. NELSON. Now?

Mr. HAND. Is there any population there whatever?

Mr. NELSON. No, sir; not on the vacant land.

Mr. HAND. What is it planned to cover in irrigating this land? You said something about veterans' entry.

Mr. NELSON. Yes, sir.

On the map there is not a live stream that enters the Snake River for approximately 300 miles. This area [indicating] is underlain with lava beds, and there is considerable tributary drainage area. All of the surface streams disappear in the lava beds. It was not until recent years with the development of deep well techniques that the fact was proved that there is practically what amounts to an underground river there, about 5 million acre-feet a year, flowing under the general area.

As far back as 1908 all of these desert lands owned by the Government were withdrawn with the plan that they could be irrigated by gravity from American Falls Reservoir which was built in 1927 with 400,000 acre-feet reserved for these lands. Then there followed an extreme period of dry years on the Snake River, and it was necessary that this water be used for the irrigated lands already in existence. So the water supply by gravity was not available to these new lands, which are some of the most fertile lands in the Snake River Basin.

Now we find that by driving wells throughout this area, about 250 feet deep, the average well runs about 200 feet to water, we can pump from 6 to 8 second-feet per well at a relatively modest capital investment, as you will notice looking at the total here, ($133 per acre). They are public lands, divided into farm units of about 100 acres each, and there will be from 85 to 100 farm units added annually this year and in fiscal year 1956. In fiscal year 1957 there will be over 200 added. There are about 5,000 applications for each 100-unit drawings, exclusively war veterans. The first group settled the 7,300 acres and got 90 percent of it into production the first year. They have an opportunity of creating a real private enterprise with some capital and hard work on their part and all of the Bureau's cost is going to be returned. There is no subsidy on this project except possibly for the fact they will be getting pumping power at a low rate from Palisades Reservoir.

CONDITIONS FOR ACQUISITION OF LAND BY VETERANS

Mr. HAND. What is the nature of our arrangement with the veterans entering the land so far as the lease, or purchase of the land is concerned?

Mr. NELSON. They obtain the land very similarly to the provisions of the Homestead Act, except they are required to have $4,500 in assets, partly cash or partly equipment. They are required to have a certain amount of past farm experience, actually on the farm after the age of 15. They must be of good health, and meet other qualifications of an examining board after they are drawn. They also are required

under the terms of public notice ot pay their annual charges during the development period that will equal the operation and maintenance cost, primarily the cost of pumping power. Then at the end of the development period they are expected to assume, not only the annual operation and maintenance payment, but also to make annual payments on the capital investment. The whole project is scheduled to be paid off in 50 years.

Mr. HAND. Do they pay anything for the land itself?

Mr. NELSON. No, sir.

Mr. HAND. It is just a matter of drawing by lot?

Mr. NELSON. Yes, sir, then they must establish residence. It takes about 2 to 3 years to establish residence and acquire patent or title to the land. They must clear the land, because it is sagebrush land, they must level it and build their own distribution and irrigation systems. They have to prepare the land for cropping. It takes a certain amount of fertilizer and then they must provide their own buildings, equipment, and so on. All this at their own expense.

Mr. HAND. Do they get eventually some fee title to the land?

Mr. NELSON. Yes, sir.

Mr. HAND. Do they get that immediately, or after they have complied with all these obligations?

Mr. NELSON. They get title in a period of 2 to 3 years, when they have established residence on the property and have developed a certain percentage of the property. They do acquire absolute title.

Mr. HAND. How many farms have been developed here now?

Mr. NELSON. There are about 7,000 acres that were farmed last year, and another 9,000 acres is to be added this year for a total of 16,000. Every unit on which we had a drawing last year has been selected and there will be a new settler on it this year.

Mr. HAND. The balance of the land, some 77,000 acres, is still undeveloped, and still vacant?

Mr. NELSON. Yes, sir. This request will develop another block of some 10,000 acres next year, and the main pumping plant out of the Snake River will add about 13,000 acres so that in the next 3 years the entire division will be settled.

STATUS OF CONSTRUCTION WORK

Mr. HAND. How far along are you with the construction work that is necessary?

Mr. NELSON. The project will be about 37 percent complete by the end of fiscal year 1955. It will be entirely completed in the next 3 years.

Mr. HAND. You say you plan to have it repaid in the 50 years. Do you have actually any conservation district, or people with whom you contract for the repayment?

Mr. NELSON. No, sir, only the folks who are on the 7,000 acres, or were on last year, are there now. It is a little difficult for them to speak for the whole area at this stage of the game.

Mr. HAND. In other words, you will not have anybody with whom to contract for repayment until you get the whole area settled, is that correct?

Mr. NELSON. That is right, because it is Federal public land.

Mr. HAND. Do you have any other projects of this general nature?

Mr. NELSON. The Columbia Basin project and Kennewick project approach this, except the proportion of Federal land is less and there are a number of private units. The Minidoka north side is the only 100-percent public land project that we have. However, all projects usually have a certain amount of public lands. On the Columbia Basin project there, 200 units will be available for veterans in fiscal year 1955 of the 60,000 acre total, 190 in fiscal year 1956 of the 54,000 acres coming on in that year and we will have 155 units available in the next year. Those are from lands that have been purchased by the Government under the terms of the Columbia Basin Act and are broken up into farm units and are sold to veterans.

CROPS PRODUCED IN SNAKE RIVER BASIN

Mr. HAND. Prior to this irrigation project, this land, I take it, was worthless for all purposes; is that right?

Mr. NELSON. Yes, sir.

Mr. HAND. How is it being farmed? What are they producing there on these 7,000 acres?

Mr. NELSON. The 7,000 acres are being used for growing feed, alfalfa, row crops, such as potatoes, peas, beans, sugar beets. Sugar beets is a very good cash crop on a project of that kind.

Mr. HAND. Now, I can understand the great desirability of getting these people fastened to a piece of their own land and have them start in as producers and living on this land, but what I do not understand is how is it in the national interest for us to spend anywhere from $100 to $400 and sometimes more per acre to bring more into production when one of the principal problems the Government is facing now is overproduction of agricultural products?

Mr. DEXHEIMER. Mr. Hand, if I may answer that, the products that are being produced here are not in oversupply.

Mr. HAND. He mentioned potatoes and beans, and so forth.

Mr. DEXHEIMER. To some extent potatoes are, but they are used locally by the increasing population in that general area. As a result of these developments and as a result of the increasing industrialization of that particular part of the country, crops grown locally are consumed locally rather than going into surpluses.

Mr. HAND. It is your fixed opinion that they need all this additional land for the purpose of producing more crops?

Mr. DEXHEIMER. Yes, sir; and particularly in connection with the Columbia Basin; that has been a rather good dry-land wheat farming. We are taking out of the surplus wheat those acres and putting them into other crops which are not in surplus as a general rule. Throughout the West generally, and this area in particular, these lands, by the growing of hay and feed make possible the much greater development of livestock and wool which is certainly not in overproduction and adds greatly to our national diet. Because of the grazing lands available through the public lands, forests, and other lands, private and public throughout the area, these farms really form a winter base for carrying a better percentage of their herds over and feeding them better and getting them ready for market.

Mr. HAND. With respect to wool, is it not true that the more wool we produce the more we have to subsidize?

Mr. DEXHEIMER. I do not believe it is. In the case of wool, we are buying wool from various parts of the world and have been for a long time.

Mr. HAND. And subsidized directly or indirectly the local wool, did we not?

Mr. DEXHEIMER. I do not believe that is correct. I do not know the details of it, but I do know that our Government has been negotiating, particularly with Australia, in buying wool and the price of our wool, a few years ago, at least, ran up pretty close to $2 a pound simply because there was not enough of it.

TOTAL LAND UNDER FEDERAL IRRIGATION

Mr. JENSEN. How many acres of land is now under irrigation on Federal projects?

Mr. DEXHEIMER. Just about 7 million acres, either full or supplemental supply.

Mr. JENSEN. How many acres now producing vegetables, approximately?

Mr. DEXHEIMER. I do not have that figure now, Mr. Jensen.

Mr. JENSEN. I think you will find it is around 3 million acres.

Mr. DEXHEIMER. I would think approximately that; yes, sir.

Mr. JENSEN. I have seen facts and figures which prove pretty conclusively that were it not for these 3 million acres of irrigated land that are now producing vegetables, that the cost of the vegetables we eat would be 2 or 3 times more than they are today because of the fact that it is possible to raise about 3 times more vegetables on an acre of irrigated land than on an acre of dry farming. I think the record will show that there is almost 3 times more vegetables on an acre of irrigated land than on an acre of dry farming. That is one of the advantages in irrigation and irrigation program for the benefit of all the people, the simple fact that because of these millions of acres that we have in vegetables on our irrigated land, our vegetables are much cheaper today than they would be were it not for the production from the irrigated acres.

Mr. DEXHEIMER. I think, if I may give you a few figures, in the Southwest the Bureau of Reclamation projects produce 100 percent of the United States grown dates; 97 percent of fall and winter and 95 percent of early spring lettuce; 98 percent of early spring cantaloupes and 66 percent of early summer cantaloupes; over 99 percent of late fall, winter, spring and early summer carrots and, of course, sizable proportions of the total Nation supply of other vegetables and truck crops. In addition of course, in the West there is some 700 million acres of grazing land that these provide the base for acrrying over those herds and the feed that is necessary to fatten them for market and to carry them through the winter when they are not able to graze on the other land.

VETERAN INDEBTEDNESS ON MINIDOKA PROJECT

Mr. JENSEN. I just have one more question. On your Minidoka project, what is the average indebtedness and debt obligation of a veteran who has one of these 100-acre tracts from the standpoint of machinery he must buy, the buildings and the repayment contract which he must enter into, which amounts over the repayment period

of so much? You must have a record of the personal indebtedness, or the personal debt responsibility of each one of these veterans, do you not?

Mr. DEXHEIMER. Yes. That man getting perhaps 80 acres first must have at least $4,500 in equipment or cash to start himself out and to live while he is getting his land developed. He puts that usually into farm equipment and his labor into the operations. He probably spends, as soon as he can get hold of the money through borrowing or other means, $20,000 to $30,000 in equipment. He puts some of his money and borrows the rest to build a house, the average investment being perhaps $10,000 on the place. The FHA in this instance has insisted on substantial housing to meet the needs of the climate and to provide a reasonable base for living. The homes I saw up there are quite nice and I think the FHA has insisted on that before they put in their money on a loan. So his total obligation for those things would probably run in the neighborhood of $40,000 to $50,000. In addition to that, then, he must pay each year the operation and maintenance costs, the interest on his loans, and as soon as his development period is over he must start repaying the capital cost to the Government, in this case, some $417 an acre.

Mr. JENSEN. So he has to be a pretty good farmer and a pretty good businessman after all is said and done, to make a go of it, irrespective of the fact that he did get the land originally for nothing?

Mr. DEXHEIMER. That is true. I think the same thing is true of the businessman who goes into the city there and purchases a piece of land and puts $100,000 into a building and $200,000 or $300,000 into stock, he has to be a pretty good businessman to come out and pay his interest and his other things that go along with it, and come out with a profit.

As I pointed out earlier, each one of those people, including the businessman and the farmer, as soon as they are established, contribute an average of $1,400 a year in Federal taxes.

Mr. EVINS. Mr. Dexheimer, you and Mr. Nelson both make excellent witnesses as advocates of the Bureau of Reclamation program.

Mr. DEXHEIMER. That is our hope, Mr. Chairman.

Mr. EVINS. I could think of some more reasons why it is fine policy to resettle veterans and soldiers on Federal land. Wasn't it Henry Clay who said that when a man attaches himself to good land, he becomes a good citizen?

ADMINISTRATION POLICY ON BUILDING TRANSMISSION LINES

I want to refer to this wheeling proposition. I am not satisfied with all the information we have had. My information is that in 1954 the Bureau of Reclamation recommended in their appropriation requests, money to build this line, is that not correct?

Mr. DEXHEIMER. Yes, sir, I think it is.

Mr. EVINS. There has been a change of policy since then?

Mr. DEXHEIMER. To some extent, the change of administration policy has been not to build Federal transmission lines if suitable arrangements could be made for wheeling federally produced power over existing lines.

Mr. EVINS. When was that policy made?

Mr. DEXHEIMER. Essentially in August of 1953.

Mr. EVINS. 1953, but in 1954 you requested of this committee money to build this particular transmission line?

Mr. NELSON. Yes, sir, we did. At the time the appropriation request was made up, about 9 months before, we did not know whether we were going to have any luck with our negotiations and the item was put in so we would have a bargaining position.

Mr. EVINS. You have requested funds of this Committee in the past for building transmission lines elsewhere and up to 1954 you were doing that, and since 1954 you are not asking for any funds of this committee for building of transmission lines?

Mr. DEXHEIMER. Yes we are. We have a considerable amount in this budget for transmission lines, largely, however, they are to tie together Federal hydroelectric plants or to get the power to load centers where there are no existing facilities, or none with the capacity of doing it.

Mr. EVINS. After you have negotiated the contracts with the Idaho Power & Light Co. and then you come back and asked the Committee for additional funds for transformers, is that correct?

Mr. NELSON. Yes, sir.

Mr. DEXHEIMER. Yes, sir, I think that is correct.

Mr. NELSON. We do have a transmission line item here that is substantial. We have to have a transmission line from Palisades Dam to Goshen substation.

Mr. EVINS. That is the next item.

Mr. NELSON. Yes, sir, we have that line in the request and are negotiating wheeling from that point on.

Mr. EVINS. Why did you not negotiate with the Utah Power for that?

Mr. NELSON. It would have to be Utah Power and there again when negotiations were started I think the company did state that "We will give you a figure for as far as you want to go" and in this case there was no line there now. That would not be a duplication of an existing facility, so that they would have to figure the financing of the entire line and we felt in this case, since there was no line there and it was required exclusively to get the output of this project to a load center, that it was more to our advantage and that we could build it just as well and as cheap as they could.

Mr. EVINS. In other words, they want to preempt the field and you are developing this for reclamation and you are bringing in soldiers and veterans in settling this area and they want to be sure ultimately by preempting the field of supplying them with electric power?

Mr. NELSON. I cannot respond to that, but I do know that when we made our case they agreed with us that probably we were in a better position to build the new line and that where they had an existing line, and there was capacity that was not being used that we would be money ahead using that capacity. Where 100 percent new capacity was required it was probably to the government's advantage to build.

Mr. EVINS. Then let the government build it in that instance?

Mr. NELSON. Our amortization of projects is based on costs. So our decision was based on what we felt would give the best finished costs.

Mr. EVINS. Have there been other instances in which you have furnished transformers?

Mr. NELSON. Yes, sir. Parts of this project have been constructed as early as 1908 and in every case of an exclusively irrigation pumping project, we do equip them with transformers and switch gear.

Mr. JENSEN. Not only that project, but up in the Bonneville area, the Bonneville Power Administration has built transformers. All over the West the Government has built transformers for many, many years.

Mr. EVINS. They have built a lot of powerlines, too.

Mr. JENSEN. Yes.

PALISADES PROJECT

Mr. EVINS. The next project, I believe, is the "Palisades project." The reporter will insert in the record pages 180, 181, and 182 of the justifications.

(The justifications are as follows:)

PALISADES PROJECT, IDAHO-WYOMING—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		74,038,000
Total obligations to June 30, 1954		32,312,906
Allotment, fiscal year 1955	$12,936,000	
Prior year balance available	2,000	
Total obligations, fiscal year 1955		12,938,000
Allotment, fiscal year 1956	9,000,000	
Total obligations, fiscal year 1956		9,000,000
Balance to complete		19,787,094

Work proposed, fiscal year 1956

Palisades Dam ($3,595,000): Construction will continue and progress payments will be made under a prime contract awarded in 1952. Funds are also required for payments to material suppliers under contracts already in effect and to be awarded to support activities under the prime contract at an efficient and economical rate.

Land and rights: By the end of fiscal year 1955, all rights-of-way necessary for presently contemplated project facilities will have been secured, except for portion of transmission line rights-of-way.

Relocation of existing property ($504,600): Relocation of the remaining Forest Service road (McCoy Creek to Salt River), which was started in fiscal year 1955, will continue through the year. Relocation of the Wyoming section of United States Highways Nos. 26 and 89 will be completed and a contract for surfacing will be awarded in the early part of fiscal year 1956. Funds requested will be needed for payments under these contracts and for supporting activities. Property relocations are geared to the construction schedule for the dam and should continue on the current schedule.

Clearing lands ($228,000): Progress payments under a contract for clearing reservoir area No. 2 to be awarded in fiscal year 1955 will continue throughout the year. This work must be substantially completed before the start of water storage.

Palisades powerplant ($2,909,200): Work will continue under the prime contract awarded in 1952 and progress payments will also be made for previously awarded material contracts, and a completion contract to be awarded in the first quarter of fiscal year 1956. Progress on the powerplant at the currently scheduled rate will allow initial power generation to coincide with initial availability of water.

Palisades switchyard ($946,000): Payments under a completion contract to be awarded in 1956 and for purchase of equipment, including the main power trans-

formers, will be made. The current schedule coordinates the completion of the switchyard and need for this facility due to power generation.

Palisades to Goshen 115-kilovolts transmission line No. 1 ($66,000): Construction of the remaining 3-mile section of this line will be accomplished under the contract to be awarded for the Palisades to Goshen transmission line No. 2. The present schedule provides for completion of the line by the time of initial power generation.

Palisades to Goshen 115-kilovolts transmission line No. 2 and terminal facilities ($971,200): This is a new feature start whose construction is necessary to provide an adequate outlet at the time power becomes available from the powerplant in fiscal year 1957. Contracts for construction of this line, substation and terminal facilities at Goshen will be awarded in the first quarter of fiscal year 1956. Work will continue throughout the year with completion scheduled in fiscal year 1957. The total estimated cost of this item is $1,736,000.

Goshen to American Falls transmission line and terminal facilities: All activity on this item deferred until future years, dependent on development of need.

Carrier-current communications system ($50,000): A contract for purchase of this equipment will be awarded in the second half of fiscal year. This communication system, a new feature start, is necessary for operation of the project transmission facilities and should be in service when power is available. The total estimated cost of this item is $129,000.

General property ($5,000): This amount is a pro rata share of distributive costs from service facilities and general expense costs.

Fish and wildlife and recreational facilities ($27,000): This amount is for final transfer to the Forest Service for construction of recreational facilities. Initial transfer of $121,000 ($500 to National Park Service) was made in fiscal year 1955 by program change order. Total amount authorized for this item is $148,000.

GENERAL STATEMENT

Mr. NELSON. There has been a great deal of discussion about the situation in the area, so perhaps I can abbreviate this discussion somewhat. The Palisades project is a multiple-purpose storage dam and powerplant located on the Snake River about 65 miles upstream from the city of Idaho Falls. The purpose of the project is to provide 1,400,000 acre-feet of storage. There will be a powerplant of a capacity of 114,000 kilowatts. The primary purpose of the storage is to provide supplemental water for about 650,000 acres of land in the Snake River Plain as well as the new land projects of Michaud and Minidoka North Side and flood control. Up to December 31, 1954, the project was about 45 percent complete. The principal feature consists of an earth-fill dam containing about 13 million cubic yards. It happens to be the largest dam that the Bureau is constructing at the present time. About 6 million cubic yards are now in place in the dam. The contractor has made the primary diversion of the river and all contracts from here on out will revolve about the prime contract which provides for the construction of the dam outlet tunnels and the powerhouse. There are required auxiliary contracts for relocation of a State highway and a Forest Service road and surfacing the former. The program for fiscal year 1956 will require funds to carry out the prime contract for building the dam, about 4 million cubic yards of embankment will be placed and a completion contract will be awarded to install the powerplant machinery, to complete clearing of reservoir, to complete relocation of the facilities, mainly the State highway and a Forest Service road and to start construction of a transmission line from the dam and powerplant to Goshen substation near the city of Idaho Falls. I have a statement on some details which I can insert in the record.

(The statement referred to follows:)

Palisades Project—Construction and Rehabilitation

Palisades Dam is being constructed on the South Fork of the Snake River in Bonneville County, Idaho, about 8 miles west of the Idaho-Wyoming boundary, 57 miles east and upstream from Idaho Fall, Idaho.

The purpose of the project is to provide storage for water to be used jointly for irrigation and flood control with provisions for generation of hydroelectric power. The basic plan for Palisades project consists of an earth-fill dam 360 feet high, 2,200 feet long at the crest, creating a reservoir with capacity of 1,400,000 acre-feet, a powerplant with installed capacity of 114,000 kilowatts with transmission lines necessary for interconnection.

As of December 31, 1954, total expenditures for the project amount to $37,342,022. Embankment materials placed, total 6,100,000 cubic yards, or 45 percent of the total required; 100,000 cubic yards of concrete have been placed in the powerhouse substructure, tunnel lining, stilling basin, and other structures, or about 61 percent of total required; steel framework of powerhouse superstructure is about 67 percent complete; manufacturing of four 39,500-horsepower hydraulic turbines is 60 percent complete; considerable progress has been made on four 30,000-kilovolt-ampere generators; and a number of other equipment contracts are in progress.

Repayment contracts for 712,000 acre-feet of irrigation space which involve provisions for water savings have been entered into with 41 water users organizations. Agreement has also been reached on the basic principle involving the balance of the space. Processing of the contracts is well under way. No sales contracts for power from the Palisades powerplant have been executed except that future delivery contracts with preference customers for Palisades firm power have been in effect for several years. Contract negotiations are in progress with local utilities for wheeling Palisades energy beyond Goshen substation.

New contracts to be awarded in the last half of fiscal year 1955 include the fifth and final section of highway relocation, the final section of Forest Service road relocation, and the remaining areas of reservoir clearing.

A lag in the scheduled expenditure of funds by the prime contractor amounts to $1,611,000. This lag is due principally to overscheduling concrete work in 1954, some is due to slow progress and a delay encountered in diverting the river through the tunnels. However, the lag is of the nature that it can be overcome in fiscal year 1956. The controlling factor in the prime contract is the placement of embankment materials. Present plans of the contractor call for placing embankment at the maximum rate possible, with initial storage scheduled for the fall of 1956 and initial power on the line by December 1956. At the present time, indications are that the project goal dates will be accomplished.

The program for fiscal year 1956 includes continuation of work already in force. New contracts to be awarded include highway surfacing; Palisades to Goshen transmission line No. 2 (estimated construction cost $764,200) and terminal facilities (estimated construction cost $325,800); a completion contract for the powerhouse and switchyard; and a number of equipment contracts. Of the $9 million request it is proposed to obligate $4.9 million for existing contracts and $3 million for new contracts, the remainder will be required for personal services and miscellaneous expenses.

STATUS OF REPAYMENT CONTRACTS

Mr. Evins. What is the status of your repayment contract for Palisades?

Mr. Nelson. We have 41 repayment contracts for space in Palisades Reservoir that have been executed by the water users. We have one remaining contract, a very small one, that has not yet been executed.

Mr. Evins. How about the sale of power?

Mr. Nelson. All the firm power from Palisades has been contracted to preference customers; that is, the city of Idaho Falls and several rural cooperatives. There is also a large block of secondary energy that happens to fit the irrigation pumping season because it is generated during that time. That block will be used on the developments previously mentioned, Michaud Flats and Minidoka North

Side pumping. The balance of the dump energy will be sold to the local utilities in the area, mainly the Idaho Power and the Utah Power Cos.

COST ALLOCATION

Mr. EVINS. Mr. Nelson, I note that the Federal investment per acre is reported to be $50, of which $15 is to be repaid from irrigation and $35 is to be repaid from power revenues.

Mr. NELSON. Yes, sir.

Mr. EVINS. On what basis was that allocation made?

Mr. NELSON. That figure does not represent, of course, the total amount that water users buying that space must pay. Most of the purchasers of that space already have their irrigation installation either under contract with the Government or under private development. Palisades is a supplemental water reservoir. They have purchased space in the reservoir for short-water years so that the value of that space for irrigation is based, or the price of that space for irrigation is based, on its value to the water user for insurance water in short-water years. It takes 3 acre-feet of space on an average at Palisades to equal 1 acre-foot of normal yield.

Mr. EVINS. Is that not a rather good example of public power paying the way? Here you have $35,188,000 allocated for irrigation and $24 million of it is to be paid from the sale of public power. Public power is carrying the load for irrigation. Is that not a rather good example?

Mr. NELSON. That is a good example of power revenues helping irrigation.

Mr. DEXHEIMER. Mr. Chairman, that is one of the things that future irrigation development, as long as it is tied to repayment, must have. If it is going to progress further, it must have the use for repayment of revenues, and mainly power revenues, to carry that cost.

TRANSMISSION LINE FROM PALISADES TO GOSHEN

Mr. EVINS. Is there a need for a second 115-kilowatt transmission line from Palisades to Goshen?

Mr. NELSON. Yes, sir. The reason for that is this: The firm output of that powerplant is of the order of 20,000 kilowatts. The economic installation, however, is 114,000 kilowatts based upon the large releases of water they will make during the summer months so that during the summer months both lines are needed to carry the entire output of that plant.

Mr. DEXHEIMER. I might point out, Mr. Chairman, that when this is completed and these units are in operation, we will then have no need for this purchase of power that we are doing at the present time to carry the pumping loads. It will all be supplied through the Palisades powerplant and these lines down as far as Goshen. Then we will wheel just a short distance from there to the pumping projects.

Mr. JENSEN. Do you have any trouble getting power to use during the building of any of your hydroelectric dams?

Mr. NELSON. No, sir.

Mr. JENSEN. Where do you generally get that power from?

Mr. NELSON. It was necessary to build the first transmission line out from the existing Goshen station of the power company in order

to get power from the system of the Utah Power Co. There is a very small cooperative in the area, but its capacity was not sufficient to serve the construction load.

Mr. JENSEN. How do you arrive at the cost that you pay the private power companies for the power which they furnish to build hydroelectric dams?

Mr. NELSON. The contractor pays for that power at presumably commercial rates. He makes his own arrangement for power. The bulk of it is used by the costruction people.

Mr. JENSEN. Is the price the going price for power in that area?

Mr. NELSON. Yes, sir.

DESCHUTES PROJECT

Mr. EVINS. The next project is the Deschutes project. We will insert page 222 of the justifications.

(The matter referred to follows:)

DESCHUTES PROJECT, NORTH UNIT, OREGON—ESTIMATES FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$12,880,252
Total obligations to June 30, 1954		10,517,696
Allotment, fiscal year 1955	$49,400	
Prior-year balance available	31,281	
Total obligations, fiscal year 1955		80,681
Allotment, fiscal year 1956	274,000	
Total obligations, fiscal year 1956		274,000
Balance to complete		2,007,875

Work proposed, fiscal year 1956

Irrigation, storage, and general facilities—Completed: No fiscal year 1956 program. Balance to complete represents possible future leak-sealing requirements.

Power facilities—Completed: All project power facilities are complete.

Wickiup Dam and Reservoir ($24,000): The program provides for completion of the residence for the reservoir superintendent, including a dormitory-type building, and equipment shop and storage garage.

Haystack equalizing reservoir ($250,000): These funds will provide for the acquisition of right-of-way, collection of detailed design data, preparation of final designs, award of contracts and start of construction work on the dam. Supply contracts will be awarded early in the fiscal year for the purchase of gates and hoists.

Mr. EVINS. This is an old project, and you show an increase of $1.6 million over the estimated cost for last year. Give us a general statement and tell us about this increase.

Mr. NELSON. Yes, sir. During the last year, the addition of what is called the Haystack equalizing reservoir was authorized to the project works by the Congress, and the new request is for funds to start construction of that small off-channel reservoir.

Mr. EVINS. Point it out for us, will you?

Mr. NELSON. Yes, sir. The Deschutes project is located near Bend, Oreg., on the Deschutes River and receives water from the two reservoirs, namely, Wickiup and Crane Prairie Reservoirs, which are about 100 miles away from the project area. During the first

years of operation of the project, which is 50,000 acres in size, it was found that a good deal of water was being lost because of the great distance of the reservoirs from the project lands. If for any reason it was necessary to change the flow in the canal, several days were required to change flows coming down through the river to the project. In case of a rain or if it was necessary to turn the water out of the canal the water was lost down the river. The project water supply is quite limited, and it was found that there was an opportunity for building such a reservoir right in the project. It would then be possible to turn water out of the canal and recover that water. That combination of saving excesses and using the equalizing reservoir in the case of a deficiency, provides a much more efficient operating arrangement. All costs for the equalizing reservoir are included in the repayment contract which also was authorized by the same session of Congress. It will be an earth-filled dam and will take about 2 years to complete.

Mr. EVINS. Your original estimates many times have to be increased, but occasionally you decrease them?

Mr. NELSON. Yes, sir.

Mr. EVINS. I note that repayment periods for this project vary from 10 to 86 years in length. How do you explain this discrepancy, this wide period of time from 10 to 86 years?

Mr. NELSON. The repayment contracts of course are based upon the ability of the water users and beneficiaries to repay. The long period of years which is 76 years plus a 10-year development period applies to the irrigators on the north unit—that is, the new land project. A 39-year period applies to an old irrigation district already in existence that bought supplemental water and could pay out their share of the cost in a shorter period. The 10 years applies to the city of Culver and also there is another period of 31 years, applying to the County of Jefferson. Both of those were calculated on the basis of getting the investment back as soon as it was reasonably possible to do so.

CHIEF JOSEPH DAM PROJECT, FOSTER CREEK DIVISION

Mr. EVINS. The next project is the Chief Joseph Dam project, Foster Creek division. Place pages 236 to 238 of the justifications in the record, Mr. Reporter.

(The matter referred to follows:)

CHIEF JOSEPH DAM PROJECT, FOSTER CREEK DIVISION, WASHINGTON—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$4,615,802
Total obligations to June 30, 1954	----------
Total obligations, fiscal year 1955	----------
Allotment, fiscal year 1956	631,000
Total obligations, fiscal year 1956	631,000
Balance to complete	3,984,802

Work proposed, fiscal year 1956

The construction schedule described in the following paragraphs is tentative and subject to revision. Final decision as to the unit first to be placed under construction will depend on application of reclamation law and other controlling factors.

Blue Bottle Flat unit

Blue Bottle Flat pumping plant ($120,800): Contracts are to be awarded during the fiscal year for pumps, motors, and other equipment and for pumping-plant construction. Other designs and engineering will be in progress. This work is scheduled so that irrigation water will be available at the start of the 1957 irrigation season.

North and south area canals ($52,100): The contract for construction of the north and south area canals is scheduled for award during the last half of fiscal year 1956. Schedule allows for completion concurrently with the pumping plant in time for the 1957 irrigation season.

North and south area laterals ($65,300): The contract for construction of these laterals is scheduled to commence during the second half of fiscal year 1956 with completion programed concurrently with the pumping plant and canals.

Blue Bottle Flat pumping plant transmission line, and substation ($63,700): Contracts for substation equipment and for construction of the transmission line and substation will be awarded during the fiscal year with completion scheduled in time to provide required power to the pumping plant when completed concurrently with the canals and laterals.

General property: Procurement of operating equipment scheduled in fiscal year 1957.

Bridgeport Bar unit.

Diversion works, Chief Joseph Dam ($200): Collection of design data will be initiated in order that construction may be started and completed in the following fiscal year.

Bridgeport Bar Canal ($29,000): Collection of design data will be completed and specifications issued late in the fiscal year in order to permit construction and completion concurrently with other Bridgeport Bar facilities.

Bridgeport Bar lateral system ($12,800): Collection of design data will be completed and specifications prepared for issuance early the following year. This work necessary to permit completion of laterals jointly with other Bridgeport Bar facilities.

General property: Procurement of operating equipment scheduled in fiscal year 1958.

Brewster Flat unit.

Brewster Flat pumping plant ($70,000): Activities will include detailed preconstruction investigations, completion of design data and initiation of design looking toward award of construction contracts in fiscal year 1957. Brewster Flat is the last unit and preconstruction work must continue in fiscal year 1956 to permit completion of the division in 3-year period.

Brewster Flat Canal ($22,000): Detailed preconstruction investigations will be continued, design data completed, and design work started. This facility to be constructed concurrently with the pumping plant and laterals.

Brewster Flat laterals ($40,000): Detailed preconstruction investigations will be continued, and design work initiated leading to construction with other unit facilities.

Brewster Flat pumping plant transmission line and substation ($136,600): Construction specifications will be prepared, a contract awarded, and contract earnings payments made. Early completion of this line is necessary to provide power during the construction period.

General property: Procurement of operating equipment scheduled in fiscal year 1958.

Mr. EVINS. What is the status of planning on this project and when do you plan to initiate construction?

Mr. NELSON. During the current fiscal year there is an allotment of advance planning funds to prepare construction designs and specifications, to prepare a definite plan report and to prepare repayment contracts all of which will be accomplished either this fiscal year or early in the start of the next fiscal year. The construction appropriation request for fiscal year 1956, which is the first one for this project, will initiate construction. The project will serve about 5,600 acres and cost approximately $4.4 million. In line with the testimony this morning on the Chief Joseph Dam project this division is designed to provide an irrigation benefit to certain land in the immediate

vicinity of Chief Joseph Dam. The costs which are beyond the ability of water users to pay have been assigned for repayment to Chief Joseph Dam power revenues under provisions of the original authorization. There is an allocation of pumping power also from Chief Joseph Dam, this power being available during periods of high runoff so that the secondary energy used for pumping does not interfere with the prime or firm power output of the project.

Mr. EVINS. On page 236 of your justifications you state that—

> Construction schedule described in the foregoing paragraph is tentative and subject to revision. Final decision as to the unit first to be placed under construction will depend upon application of reclamation laws and other controlling factors.

What do you mean by that language?

Mr. NELSON. It is necessary for the water users to organize themselves into irrigation districts and sign a repayment contract for their share of the cost. There are several problems that the water users need to work out themselves, one of them being whether they want separate irrigation districts, or one overall irrigation district. Those problems are well on the road to resolution and there will be no departure from the authorized project, but perhaps some change in the timing as to which unit starts first.

STATUS OF REPAYMENT CONTRACTS

Mr. EVINS. Is it planned to wait until after construction is underway before you negotiate your contracts?

Mr. NELSON. No, sir.

Mr. EVINS. What is the status of the repayment contracts?

Mr. NELSON. We have now reached agreement with the water users that there will be separate irrigation districts for the separate units and repayment contracts will be presented to them on that basis, and we anticipate that the contracts will be executed prior to the expenditure of the construction funds.

Mr. EVINS. You will handle this one just like you have in the past?

Mr. NELSON. Yes, sir.

Mr. HAND. When you are referring to the separate units, are you referring to those units set forth in the description to the project, where you have the Blue Bottle unit irrigating only 800 acres of land?

Mr. NELSON. Yes, sir.

Mr. HAND. Bridgeport unit, 1,750 and the larger, the Brewster Flat unit, 3,030? That is the total amount of the acreage planned to be irrigated by this project?

Mr. NELSON. Yes, sir.

Mr. HAND. The cost of the project forbids the repayment of the cost by the water users and therefore will be repaid by the anticipated power revenues?

Mr. NELSON. No, sir; the irrigators will pay $303 per acre and power revenues the balance, or $542 per acre.

Mr. HAND. The cost per acre of this project is $845 an acre; is that correct?

Mr. NELSON. Yes, sir.

Mr. HAND. What is the character of the land there now and what is being done with it?

Mr. NELSON. These lands are located in, you will notice, an extremely rough and rugged terrain and mountain benches that are adapted to fruit growing. This is part of the Wenatchee-Okonagan fruit region. That is why the repayments are expected to be higher; that is why it is economically justifiable to develop projects with that high rate of cost. It will be predominantly a fruit economy.

Mr. HAND. Do you consider it is economically justifiable to spend $845 per acre on irrigation in connection with fruit land there?

Mr. NELSON. Yes, sir.

COLUMBIA BASIN PROJECT

COLUMBIA BASIN PROJECT, WASHINGTON—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$760, 874, 000
Total obligations to June 30, 1954		472, 978, 386
Allotment, fiscal year 1955	$11, 525, 000	
Prior year balance available	233, 000	
Total obligations, fiscal year 1955		11, 758, 000
Allotment, fiscal year 1956	12, 500, 000	
Total obligations, fiscal year 1956		12, 500, 000
Balance to complete		263, 637, 614

Work proposed, fiscal year 1956

Grand Coulee Dam and Reservoir: No funds required.

Other multipurpose plant facilities ($47,000): For the construction of a sewage effluent treatment plant for the dam.

Primary irrigation works ($65,000): This amount is for continued minor construction on the Soap Lake interception and convergence works, including engineering studies, and miscellaneous items on the main canal system.

West Canal irrigation area ($5,384,000): Laterals and related facilities for 25,000 acres in blocks 86 and 87 will be completed and primed and water will be available to this land on a testing year basis in 1956. Construction will continue in block 89 on the Naylor siphon, W20 lateral, the distribution laterals and related facilities, including ditch-rider and pump-tender housing. Construction will be commenced on laterals and pumping plants for the portion of the 1958 acreages in blocks 77 and 79. A contract will be awarded to construct the Royal Branch of the West Canal which extends westerly from the Frenchman Hills Tunnel to serve blocks 82, 83, 84, and 85. Necessary right-of-way will be procured and drainage and essential deferred and supplemental construction will be accomplished as the need develops.

East low canal irrigation area ($2,701,000): Completion of construction, including ditchrider housing, will be under way in block 45, and priming and testing will be commenced for this 18,000-acre block which is to receive water for the first time in 1956. Work on laterals and related facilities to serve land in the 1957 program in blocks 18, 47, and 421 will be under way. Includes the necessary funds for rights-of-way, drainage, and supplemental construction.

Potholes irrigation area ($3,982,000): Construction of laterals serving an area of 12,000 acres in block 19 will be completed and priming and testing of this system will be commenced. This area, which is a part of the released AEC Wahluke slope secondary zone, will be available for development late in the spring of 1956. The laterals to serve 1957 acreages in block 14 and the appurtenant pumping plant, transmission line, and switchyard will also be completed. A contract for construction of the heavy structures on the Wahluke Canal will be awarded. Provision is also made for the required rights-of-way and for drainage.

East high canal irrigation area ($10,000): For the continuation of system studies and reestimates in connection with the plan for construction of this irrigation area.

Pasco and Burbank pumping units ($26,000): For completion of the lateral layout and for preparation of designs and specifications for the lateral system in block 3 near Burbank.

Other irrigation plant facilities ($92,000): For additional heavy equipment for transportation, shops, stores, etc., required in operation of the project facilities.

Special distribution systems—part-time farm units: No work required. Additional part-time farm unit facilities are not contemplated until fiscal year 1957.

Development farm units: No funds required. Development farms have been constructed at Pasco, Moses Lake, Winchester, Burke, and Othello. The Pasco farm was sold during the last fiscal year and the sale of the Winchester and Moses Lake farms will be accomplished during the current year. A sixth farm has been a part of the project plan for some time but construction has been deferred.

Power facilities: No funds required.

Project investigations ($15,000): An economic study and evaluation of project benefits will be undertaken in fiscal year 1955 and be continued in fiscal year 1956. The study will probably require several years of progressive analyses to permit of valid evaluations. This amount includes $5,000 for participation by the staff of the State College of Washington.

Mr. EVINS. The next project under construction is the Columbia Basin Reservoir. This is the big project, basically Grand Coulee Dam and the irrigation works that stem from it. On page 249 of the justification it is indicated that estimated total obligations of the Columbia project are $760,874,000, prior obligations of $472,978,386. For 1956 you have asked for $12.5 million. Give us a general statement of the Columbia Basin project. What progress are you making?

Mr. NELSON. I am sure the members of the committee are familiar with the Columbia Basin project, but I will take a moment to outline the basic elements of it.

As you know, the project includes Grand Coulee Dam Reservoir, right and left powerhouses, and right and left switchyards and interconnection to the Bonneville Power Administration lines and an installed generating capacity of 1,974,000 kilowatts. The Bureau has completed a report on a possible third powerhouse. The dam and powerhouses are essentially complete except for annual replacement items and a small item for a sewage-disposal plant. There is also at Grand Coulee Dam a pumping plant which has now 6 units installed with an ultimate capacity of 12 units for pumping water during off-peak power periods from the Grand Coulee Reservoir to the 1-million-acre area covered by the irrigation portion of the project. From here on out, the primary development on the Columbia Basin project will be the development of irrigation facilities. A balanced program until the year 1961 will bring in from 40,000 to 60,000 acres a year to complete the initial program of 624,000 acres. The six units of the pumping plant discharge through the feeder canal into the 26-mile-long equalizing reservoir and thence into the main canal down to the bifurcation works.

The system of main canals, except for East High Canal, is nearing completion and will be completed within the next 2 years. They consist of the east canal, the west canal, the potholes, east and west canals and the associated irrigation facilities. The project covers an area 120 miles long in 5 counties from the dam down to the vicinity of Pasco, Wash., near the mouth of the Snake River.

This is the equalizing reservoir which is filled each year by pumping from the Columbia River. Last year about 1.5 million acre-feet were pumped. This is the west and the east canal systems serving the Quincy, East, and South Irrigation Districts. The Potholes Reservoir,

which recaptures return flows, serves the Potholes east and west canals. The principal irrigation features that are nearing completion are colored in blue and red and the color blocks represent irrigation lateral systems that are under development over a 3-year schedule. The map illustrates the blocks that will be irrigated for the first time in this fiscal year. The fiscal year 1956 program will include the blocks 14, 18, 47, 421, and 89 totaling 47,000 acres that come in in fiscal 1957 and will start construction of blocks 77 and 79 to come in in fiscal 1958. In other words, each year's program calls for work on about a 3-year design and construction schedule, namely the 1956 acreage, the 1957 acreage, and a part of the 1958 acreage.

Mr. EVINS. Are you reviewing your contracts in view of the current cost and economic conditions?

Mr. NELSON. Yes, sir.

Mr. EVINS. Do you anticipate any revisions?

Mr. NELSON. We believe that the revision of those contracts is in the best interest of the Government as well as the water users, to increase the amount that is to be repaid by the water users.

STATUS OF LAND PREPARATION

Mr. EVINS. What is the present relationship between your canal and distribution construction and the actual land preparation?

Mr. NELSON. I will say that as of today there is an investment of about $210 million in canal and irrigation facilities to serve at the end of this year, about 247,000 acres. From here to 1961 the acreage will be doubled at an expenditure of less than $90 million.

I was referring to the status of construction; 186,000 acres were ready for water last year, and 104,000 acres took water.

Mr. EVINS. I believe that is the answer. Construction has been running well ahead of turning the water onto the land?

Mr. NELSON. Yes, sir, construction of laterals, pumping plants and so forth.

Mr. EVINS. The land preparation to receive it?

Mr. NELSON. Yes, sir.

Mr. EVINS. How much ahead?

Mr. NELSON. I would say that the construction programs are geared to an irrigation program that provides for 40,000 to 60,000 acres added each year.

Mr. EVINS. What is the function of the Bureau of Reclamation settlers assistance funds? Is there duplication with the Department of Agriculture?

Mr. NELSON. I would say, sir, that there is no duplication of effort there. We have a cooperative arrangement with the Extension Service for providing a certain amount of settler assistance which is furnished by the State college, and that is coordinated with the work of the Soil Conservation Service.

Mr. DEXHEIMER. Mr. Chairman, I think there is a little misunderstanding on the development of the land. That land is being developed even more rapidly than we are getting the water to the land. In many cases, because of our somewhat reduced program in the past few years, we have been unable to serve lands which otherwise would be ready for water and as soon as water is available it is taken by approximately 85 percent of the farm units, because of the advanced

development that has been made, the leveling and preparation of the land.

Mr. EVINS. How many acreas are available or ready at the present time that do not have water?

Mr. NELSON. 247,000 will be ready at the start of this irrigation season.

Mr. EVINS. That do not have water?

Mr. NELSON. 247,000 acres will have water available this year of which we estimate 160,000 will take water.

Mr. EVINS. You did not answer the question. You have 247,000 acres altogether available. 160,000 will take water?

Mr. NELSON. Yes, sir. All the acreage that is ready at that particular block will be able to receive water.

Mr. EVINS. How many acres are ready for water that cannot get it today?

Mr. NELSON. I will have to supply that figure, sir.

Mr. EVINS. Would it be 100,000? Would it be 75,000?

Mr. NELSON. We have a lot of folks throughout the project area that have been waiting for water for many years, but of course our facilities have not yet reached them. I would say that 100,000 acres would be a conservative estimate of that category of additional lands that could be irrigated this year if our facilities could serve them.

USE OF POWER REVENUES TO PAY IRRIGATION COSTS

Mr. EVINS. Following is a summary of the cost allocations which we might consider. You have attributable to irrigation $558,693,000. Actual repayments are only $87 million over 50 years. Power revenue you have allocated $193 million, but actual repayments will be $664,249,000. The power revenue from Bonneville and Grand Coulee is carrying the major portion of the load of revenue from the entire project. The cost of irrigation is tremendously high, but the income from power revenue is carrying the load. The repayment is not coming from irrigation in any substantial portion, if these figures which you have supplied represent the true picture?

Mr. NELSON. That is correct.

Mr. EVINS. Federal investment per acre to be repaid is $543. Water users will return $85 per acre and power users will return $458 per acre. The justification indicates that you are requesting $5,384,000 for the work in the west canal irrigation area; $2 million for the east canal irrigation area. How much of the land that you contemplate to serve with these funds has been prepared for irrigation and how much of it is already settled?

Mr. NELSON. I would say that the bulk of the lands under the east canal that are included in this program are now being worked on in anticipation of receiving water. A great part of that land is privately owned. We do have quite a bit of settlement that is there now in dryland farms. I have a statement of the settlement program that I would be glad to introduce in the record, if you like.

(The following statement was supplied for the record:)

COLUMBIA BASIN PROJECT, WASHINGTON—IRRIGATION DEVELOPMENT

Construction of irrigation works on the Columbia Basin project by June 30, 1954 had progressed to the stage that facilities were available to serve 186,000 acres of lands. The system will be extended to an additional 61,000 acres in 1955

and 54,000 acres in 1956. Work will also be carried forward in fiscal year 1956 on facilities which will be ready to deliver water to about 47,000 acres of new land in 1957. Engineering and design activities are geared to a program which will complete facilities for about 40,000 additional acres each year thereafter through 1961. The maintenance and knowledge of an orderly schedule is extremely important to the other agencies and organizations which are responsible for providing the necessary highways, water systems, schools, commercial and industrial developments, and the other phases of community improvements. In this way the facilitating services which are so essential to successful development can keep pace with the rate of project construction.

The demand for project irrigation is indicated by the demand on the part of veterans for farm units available from the Government. To January 1, 1955, 568 full-time farm units and 182 part-time Government-owned farm units had been offered for sale to qualified veterans. Each of the four 1954 public announcements, which offered a total of 235 farms, drew from 3,000 to 4,000 applicants and there is no indication of any decrease in the demand for these units. The latest public announcement covering 21 units in block 45 drew approximately 3,000 applications. About 200 farm units, comprising 16,000 acres of Government-owned land, are to be opened for settlement by veterans during fiscal year 1955, while 155 units, comprising 12,000 acres, are scheduled for sale by the Government to veterans for settlement in 1956.

The clearing and leveling of land and the layout and construction of the farm distribution system is an enormous task for the new farmers and requires considerable time, especially when it must be accomplished along with the acquiring of farm equipment and the construction of houses and farm buildings. Even so, the rate of land development after water has been made available has been more rapid than was anticipated. While the Bureau has no authority to require development of land in private ownership it has set a minimum rate of development for farm units which are purchased from the Government. According to this schedule a new settler who purchases an 85-acre Government-land farm unit must have under development 40 percent of his land by the end of the first development year, 60 percent by the end of the second development year, and 65 percent by the end of the third development year. Comparing this to actual development it is interesting to note that, of 34 farm units sold in irrigation block 40 (one of the most difficult ones to develop to date), 28 have completed the 12 months residence requirement, 4 are in the process of fulfilling it, and only 2 have not established residence on their units. All but 4 of the 34 units have under development 75 percent or more of their irrigable land. One unit is 50 percent developed and only two are presently undeveloped. It is also the policy of the Bureau to require payment of the minimum charges for water service beginning the first year of the development period. These incentives to rapid development have been effective.

The rate of development actually experienced on the project for both privately owned land and land purchased from the Government has been more rapid than the above indicated scheduled rate for purchased land as can be seen from the following table:

	Block	Farm units in block	Farm units using water in 1954	Percent 1954	Percent last year (1953)
6th development year	1	82	80	98	95
3d development year	2	19	18	95	95
2d development year	70	120	90	75	66
	701	23	20	87	60
	71	146	112	77	63
	72	299	226	75	66
	40	177	151	85	69
	41	162	144	89	83
Subtotal		927	743	80	70
1st development year	49	185	132	71	29
	11	61	49	80	36
	73	275	235	85	68
	42	269	234	87	69
Subtotal		790	650	82	56
Total project (development period land)		1,818	1,491	82	65

An additional 734 farm units in blocks 12, 15, 43, 74, and 75 received water on a testing period basis during 1954. Forty-eight percent of these units commenced irrigation on their farms. A new first-year record was established on 1 of these testing-year blocks when 119 out of the 132 farm units in block 74 used water.

Another measure of the development rate and an indication of the settlement success is gained from the figures on gross crop returns for the first 3 full irrigation years (the figures include statistics on testing year land):

	1952	1953	1954
Acres irrigated for crops	27,127	63,958	104,327
Gross crop return	$4,686,885	$9,081,887	[1] $16,000,000
Per-acre average	$175	$142	$153

[1] Record not yet completed but total is expected to exceed $16 million.

It is also interesting to note that, of 212 federally owned farms sold to veterans in areas receiving irrigation water during the period 1949 through 1953, only 12 or about 5 percent have been disposed of by the original purchasers after the veterans had established residence upon their units. There have been, however, 46 cases where the original purchasers have assigned their purchase contracts to other qualified veterans without ever establishing residence on the units. Reasons for such assignments have been many and varied including such things as inadequate capital and the discovery of what the veteran considered to be better opportunities elsewhere. The veterans to whom such purchase rights have been reassigned have gone on to successful development of the farm units.

WEST AND EAST CANALS

Mr. EVINS. You have $5 million for the West Canal and $2 million for the East Canal. Can you tell the committee how much of the land you contemplate serving with the use of these funds?

Mr. NELSON. Yes, I can. On the West Canal area laterals, facilities for 25,000 acres in blocks 86 and 87 would be completed and primed for use in 1956, and we will continue on block 89.

Mr. EVINS. You say to be completed, I asked you how much had been completed. Will you tell the committee how much has been prepared?

Mr. NELSON. The areas that are in green have been completed. The areas in blue are being worked on and the areas in orange are in our program for 1956.

Mr. EVINS. That looks pretty good on the map, but can you tell me how much that represents in acres, for the record?

Mr. NELSON. I would have to say about 100,000 over and above the figure I gave you of 247,000 that physically can receive water this year, sir.

Mr. DEXHEIMER. We could give you a breakdown on those particular areas under those canals.

Mr. EVINS. Supply that, will you, Mr. Commissioner?

Mr. DEXHEIMER. Yes.

(The information referred to may be found on p 252.)

Mr. EVINS. How many acres have already been settled of this overall acreage?

Mr. NELSON. The full amount of the 160,000 acres has been settled and will receive water this year. Now, there are a number of acres above that there where folks are waiting for water that I do not have the box score on, but I will be glad to supply that for the record.

Mr. EVINS. A lot of this land is public land, and some private land?

Mr. NELSON. I would say the reverse, largely private land with considerable land-purchase program on the part of the Federal Government.

Mr. EVINS. I wish you would supply the committee with a breakdown of how much is public domain, how much is private land, how many acres cleared, how many ready to receive water and how much actually has received water. Give us the acreage.

Mr. NELSON. We would be glad to do that.

Mr. DEXHEIMER. Do you want that for the total project, and also a breakdown of this West Canal area, and the East Canal area for fiscal 1956 program?

Mr. EVINS. And the Potholes program.

Mr. DEXHEIMER. For the 1956 program?

Mr. EVINS. I think that would be most helpful.

Mr. DEXHEIMER. Yes, sir.

(The following information was supplied later:)

OCCUPANCY AND SETTLEMENT OF LANDS, COLUMBIA BASIN PROJECT

Only a very small number of settlers are now living on farm units awaiting water on the 54,000 acres of 1956 lands. These and all the remaining lands on this project are in Sagebrush or in large dry-farm operations. The 54,000 new 1956 acres will consist of 676 farm units, of which approximately 150 are presently owned by United States and 46 by the State of Washington. The 150 United States owned units will be sold to veteran applicants during this spring and summer and most of them will be settled by the time water is available in the spring of 1956. It is expected that the 46 farm units owned by the State of Washington will also be disposed of to settlers prior to the availability of water in the spring of 1956. Of the remaining 480 units, a considerable number are owned by local residents of communities in Columbia Basin, but most are owned by people scattered widely over the Nation, quite a number of whom are original homesteaders or their descendants. Most of these landowners will come to the basin area to occupy their units when water becomes available.

Basic policy with respect to project settlement has been to discourage the occupancy and development of farm units until water is available. This policy eliminates damage from blowing which can result from premature clearing and leveling operations in advance of water availability. Also, the development of roads, power lines, domestic water facilities, and the other facilities necessary for effective development and operation of the farm units is closely integrated with the project construction program, and these facilities become available at about the same time as the water for irrigation. Settlement in advance of completion of these facilities leads to undue expense and dissipation of the settlers resources before effective farming can be commenced.

There are 8 or 9 settlers now occupying 1956 units on the heretofore deserted Royal slope in blocks 86 and 87 of the West Canal area. In block 45, near Othello in the East Canal area some landowners now engaged in dry farming will retain portions of their farms and commence irrigated farming as soon as water becomes available. In addition, a number of landowners have come to project towns and now await only the availability of water to commence their farm development.

There has been particularly intense interest in the purchase of privately owned farm units in block 45, now in dry farm wheat production. Experience on most blocks has indicated that the number of settlers moving on to the units and commencing development in the fall preceding the year of initial water availability constitute a relatively small percentage of those who will farm lands the following summer. In certain instances, notably the 1954 block 74, acreage in the West Canal area, the proportion has been higher due to unusually high land quality and high proportion of local resident ownership. The Government utilizes the summer and fall preceding the spring availability of water for priming and testing the projects lateral systems, accordingly settlement is not encouraged during such period.

The demand for purchase of good farm units, both privately owned and those offered for sale by the Government, remains high. In a recent drawing for 21

farm units in block 45, applications were received from 3,300 prospective purchasers. Settlement thus far has met original expectations.

Attached are self-explanatory tables which show occupancy and ownership of lands on this project.

Occupancy and ownership as of April 1955 of lands for which water delivery facilities are ready in 1955

	West	East	Potholes	Total
1. Bureau's facilities completed and ready to distribute water in 1955 crop year	96,000	78,000	73,000	247,000
2. Total irrigable acreage of presently occupied farm units in above figures [1]	64,000	53,000	37,000	154,000
3. Total irrigable acreage of farm units expected to receive water during 1955	75,000	62,000	44,000	181,000
4. Portion of 247,000 acres privately owned	94,640	76,598	65,974	237,212
5. Portion of 247,000 acres publicly owned:				
United States	1,315	950	6,082	8,347
State of Washington	45	452	944	1,441

[1] Occupancy as used in above table refers to any farm units on which farming, clearing, and leveling or other physical farm unit development has been undertaken or on which physical preparation for such work is in evidence whether undertaken directly by owner or by tenant. Acreage reflect full irrigable acreage of farm units regardless of extent of actual cultivation thus far commenced.

Occupancy and ownership as of April 1955 of new lands for which water delivery facilities will be available for first time in 1956

	West	East	Potholes	Totals
1. Added increment of acreage for which Bureau facilities now under construction will be completed in time for 1956 crop year	24,500	17,500	12,000	54,000
2. Estimated acreage of presently occupied farm units in above figures [1]	1,000	1,000	300	2,300
3. Estimated irrigable acreage of the farm units expected to take water for crop production in 1956. Settlers ready for water but most awaiting water service before commencing physical farm unit development	12,000	13,000	5,500	30,500
4. Portion of 54,000 acres privately owned	16,820	14,648	3,436	34,904
5. Portion of 54,000 acres publicly owned, all of which are expected to be disposed of to veteran purchasers before 1956:				
United States	7,518	1,934	7,418	16,870
State of Washington	162	918	1,146	2,226

[1] Occupancy as used in above table refers to any farm units on which farming, clearing, and leveling or other physical farm unit development has been undertaken or on which physical preparation for such work is in evidence whether undertaken directly by owner or by tenant. Acreage reflect full irrigable acreage of farm units regardless of extent of actual cultivation thus far commenced.

DISPOSAL OF DEVELOPMENT FARMS

Mr. EVINS. I notice from the justification that you have sold, or are planning to sell, three development farms. What are your plans for the disposal of the other farms?

Mr. NELSON. The other two farms are planned for disposal in fiscal year 1956.

Mr. EVINS. Point out these two.

Mr. NELSON. We have a farm at Othello and we have a farm over near Burke.

Mr. EVINS. The yellow?

Mr. NELSON. It is a very small farm in this general area. This is a large scale map and it would be a dot on this map. They are on the extreme west side and extreme east side of the project.

Mr. EVINS. Are these disposed of through your own offices or through the General Services Administration?

Mr. NELSON. These are disposed of through the Bureau of Reclamation for the reason that usually there is a farm operator who has been leasing the farm and they are usually disposed of through a negotiated sale with that operator so the cropping and demonstration program can be continued.

LAND AVAILABLE FOR SETTLEMENT BY VETERANS

Mr. JENSEN. As I remember, there is approximately 1 million acres of land in this project that was to be made available to veterans for settlement?

Mr. DEXHEIMER. Yes, sir, 1,029,000.

Mr. JENSEN. 1,029,000. There are already settlers on how many acres?

Mr. DEXHEIMER. About 160,000.

Mr. JENSEN. And how many more do you expect to settle in the fiscal year 1956?

Mr. DEXHEIMER. About 60,000.

Mr. JENSEN. About 60,000 more acres?

Mr. DEXHEIMER. Yes, sir.

Mr. JENSEN. Is that about the amount that you plan to make available for settlement each fiscal year?

Mr. DEXHEIMER. No, sir, we planned originally to be about 100,000 and worked out cooperative arrangements with the State and the counties to build roads and schools, and other things on that basis over a period of years, but we have not had sufficient appropriations to keep up quite to that original schedule.

Mr. JENSEN. Since you are talking about the fact that you have not had sufficient appropriations, I remember in 1948 or 1947, rather, I think it was, when we really got started on this project, I happened to be chairman of the Interior Subcommittee and we appropriated $50 million that year for the Columbia Valley project. There were some folks that wanted to carry this development program on for many, many years, but the veterans organizations insisted that it be developed at the earliest possible time so that the veterans would still be young enough to farm, while they still had the opportunity and could qualify for a farm. So it was the plan then to complete this development and this settlement program in a period of about 10 years. We are falling, I believe, a little short of that target, are we not?

Mr. DEXHEIMER. Yes, sir, that was the basis of our original 100,000 acres a year.

Mr. JENSEN. Yes.

Mr. DEXHEIMER. Which has not kept pace.

REPAYMENT CONTRACTS

Mr. JENSEN. What was the per acre cost on which the $85 payment was predicted?

Mr. NELSON. At the time the $85 per acre figure was developed, the irrigation costs were $280 million directly to irrigation. So that would be about $280 per acre allocated to irrigation. However, that was prior of course to the war and that same allocation now is over $500 million.

Mr. JENSEN. That $85 an acre repayment contract was considerably less than almost any other project, was it not?

Mr. DEXHEIMER. Yes, sir.

Mr. JENSEN. What was the purpose of that? Why was it made, was it because it was to be settled by veterans? Was that the reason or was there some other reason?

Mr. DEXHEIMER. That, as Mr. Nelson said, was established on the basis of prewar prices and estimates of the project at that time. It has not been altered simply because there has been no one there essentially that you could deal with. Until recently these irrigation districts were organized and we are in process now of negotiating a change.

Mr. JENSEN. You are in process now of negotiating an increase in the repayment?

Mr. DEXHEIMER. Yes, sir. I notified the irrigation districts concerned just within the last week or so that we would need to get together to work out, because of the changed costs, changes in the repayment contracts.

DRAINAGE AND SEEPAGE PROBLEMS

Mr. JENSEN. I have been told that you have a drainage and seepage problem in some parts of the project. What is the story on that?

Mr. NELSON. I would say, sir, that there is a drainage problem and seepage problem in the Columbia Basin which is similar, and is a normal occurrence, on most irrigation projects. It is estimated that there will need to be a program of construction of deep drains, possibly some pumpage from wells to correct the problem, but it will be of the magnitude that we normally encounter on irrigation projects.

Mr. JENSEN. This problem is not brought about, I hope, by the fact that water is cheap and some of the farmers are using too much and leaching out their land, they are using too much water?

Mr. DEXHEIMER. We suspect in some areas that may be partly the cause of some of the problems, yes, sir.

Mr. JENSEN. We all know that too much water is sometimes as bad as not enough.

Mr. DEXHEIMER. We find that where we have to curtail farmers on their water uses they quite often come out with better crops and more production than they do if they have all the water they want.

SUCCESS OF VETERAN LANDOWNERS

Mr. JENSEN. I have been wondering how successful the veterans are that are now settled on this land. Are they on the road to success or do you have some falling by the wayside?

Mr. NELSON. Up to now of the total number of veterans who have settled there, I believe there are only 12 who have assigned their units and moved from the project. I would say that there are no outstanding cases of failure. Of course, there is always going to be an individual who fails. I would say that the proportion there up to now of success has actually been better than for the average reclamation project.

Mr. JENSEN. Is there any tendency toward allottees leasing their land to large operators? Have you had any trouble at all in that respect?

Mr. DEXHEIMER. I do not think they have given us any trouble. I think there are cases where individual units, or part of them, have been leased for a time.

Mr. JENSEN. Is there anything in your original contract which provides that at least to a certain time a veteran on these lands is not permitted to lease his land?

Mr. NELSON. The veteran has a period of, I believe it is, 2 or 3 years counting allowable extensions for cause in which to establish residence. Now, it is legally permissible for him during that period to lease his unit. Some of them do while they transfer their family and effects and get a house built. But he cannot acquire patent to the land until he establishes a bona fide residence which is required within 3 years and we have had one case where a veteran failed to establish residence within the period required. There was only the one case that I know of where we have been asked to extend that period.

Mr. JENSEN. Are there cases where you are obliged to extend the repayment period, that is, to postpone a payment in order to help the veteran over a bad spot, over the hump, so to speak?

Mr. NELSON. The charges are graduated so that the veteran has a 10-year development period before capital repayment starts. All settlers in that 10-year period, at the end of the period, must have paid the actual out-of-pocket costs. They are graduated from a lesser amount in the first few years to a greater amount in the latter part. That is the extent of our authority. The cost must be collected by the irrigation district. We do not deal with individuals, we deal with irrigation districts.

Mr. JENSEN. Thank you.

INCREASE IN ESTIMATED COST

Mr. HAND. The revised estimate of the cost of this project is presently estimated at $754,874,000?

Mr. NELSON. Yes, sir.

Mr. HAND. And that compares to the cost of the original estimate of $487 million?

Mr. NELSON. Yes, sir.

Mr. HAND. Is that difference occasioned entirely by a rise in the cost of construction, or difference in planning, or both?

Mr. NELSON. I would say almost entirely by rise in the indexes.

Mr. HAND. In the cost indexes since originally planned?

Mr. NELSON. Yes, sir.

CONTRIBUTION BY STATE OF WASHINGTON

Mr. HAND. I notice that there is a contribution here to this $700 million project from the State of Washington in the amount of $313,000. How did that come about?

Mr. NELSON. In 1934 when investigations required at that time were underway on the Columbia Basin project, the State of Washington did appropriate that much to its Columbia Basin Commission for preliminary studies on the project which were used in the authorization of the project. They actually performed engineering surveys

Mr. HAND. That is what this contribution is represented by, some engineering surveys done locally?

Mr. NELSON. Yes, sir. They financed such work which was necessary.

PERCENTAGE OF OVERHEAD COSTS TO TOTAL COSTS

Mr. HAND. The cost allocated to irrigation here under the revised estimate is some $543 per acre?

Mr. NELSON. Yes, sir.

That will be repayable by a combination of collections from the water users and from power revenues.

Mr. HAND. Does that cost per acre, Mr. Nelson, reflect the overhead, or is that direct cost?

Mr. NELSON. That reflects all costs; engineering, design, administration, overhead and construction. All costs are in that figure.

Mr. HAND. What is the general percentage figure of overhead costs? I mean the original planning and advanced planning and investigation and reports and the engineering, construction, supervision, everything that might be called overhead. Do you know what percentage that might bear to your construction costs?

Mr. DEXHEIMER. I do not think, Mr. Hand, that those things are properly overhead, direct engineering expenses on the job.

Mr. HAND. The word overhead might not properly be used, but what proportion does that bear to your construction costs, do you know?

Mr. DEXHEIMER. It varies with different projects, of course, but generally speaking, I would say that it runs around 15 percent; that would vary with different types of projects. We have had those costs, which I do not think are properly overhead, but the engineering, field inspection, design and planning and the cost of preparing these reports and supporting our appropriations, and so on, before the committees, and all the other things in some instances, well, it would vary, I would say, from 15 to 20 percent in some cases in the past, although I am happy to say that is not the case today, we have had them run as high as 35 percent.

Mr. HAND. Could you furnish the percentages of the cost for this project and the average cost for your departmental costs for the past 5 years?

Mr. DEXHEIMER. You are talking now just about the Bureau of Reclamation expenditures on these things?

Mr. HAND. Yes.

Mr. DEXHEIMER. For a period of how long?

Mr. HAND. Two years.

Mr. DEXHEIMER. An average for this period?

Mr. HAND. Yes.

Mr. DEXHEIMER. I would much prefer to give it to you on an annual basis, because we could show you an annual improvement.

Mr. HAND. Could you do that?

Mr. DEXHEIMER. We will do our best.

(The following information was supplied later:)

CONSTRUCTION AND REHABILITATION

Relationship of administrative and engineering expenditures to total expenditures

	Construction engineering and supervision [1]	Designs and specifications [2]	Superintendence of force account [3]	Charges from associated offices [4]	General services [5]	Total
Percent of total Bureau construction and rehabilitation expenditures (fiscal year):						
1952	7.1	4.0	0.1	2.6	2.7	16.5
1953	7.2	4.5	.0	2.8	2.9	17.4
1954	6.4	4.3	.0	3.1	2.6	16.4
Average of fiscal years 1952, 1953, 1954	6.9	4.3	.1	2.8	2.7	16.8
Percent of Columbia Basin project construction expenditures (fiscal year):						
1952	9.6	3.9	.2	.6	3.4	17.7
1953	11.6	4.8	.1	.7	3.9	21.1
1954	11.4	5.9	.2	.8	4.7	23.0
Average of fiscal years 1952, 1953, 1954	10.6	4.6	.2	.7	3.9	20.0

[1] Includes construction surveys and layouts, inspection, project engineering during construction.
[2] Includes preparation of construction designs, drawings, and specifications; contract advertisement, bids, and awards; procurement schedules; engineers' estimates.
[3] Includes direct supervision of Government labor forces.
[4] Includes miscellaneous expense for project services performed by regional and Denver offices.
[5] Includes project administration, accounting, personnel, supply, medical, police and guides, and general office expense.

RELATIONSHIP OF COST OF INVESTIGATIONS TO TOTAL CONSTRUCTION COST

Analysis of all Bureau of Reclamation projects now under construction and those which have been completed since 1951 shows that amounts expended for investigations through June 30, 1954, on these projects are equal to 1.3 percent of the total estimated construction cost of the projects.

Investigations, as used in this analysis, include the cost of engineering surveys, agricultural and power studies, hydrologic studies, geology and exploration, economic studies, plans, estimates, and reports, and cooperative studies by other agencies. All project investigation costs include an equitable share of the cost of reconnaissance and basin investigations.

Mr. HAND. The amount you are asking for this year for construction is $12.5 million?

Mr. DEXHEIMER. Yes, sir.

ESTIMATED COST OF COMPLETION

Mr. HAND. You have a balance to complete of $263 million, is that right?

Mr. NELSON. Yes, sir.

Mr. HAND. Generally speaking, how will it be used?

Mr. NELSON. That is for completing the remaining 6 units in the pumping plant, canals, laterals, and pumpling plants when the ultimate project of 1 million acres is developed. That would be for the difference between the acreage program reflected here and the million acres. The $12½ million request will bring us up to about 300,000 acres of completed project at the end of fiscal year 1956 out of the 1 million acres.

Mr. HAND. Is the project as it is completed so far a wholly useful project in itself?

Mr. NELSON. Yes, sir, it is, except that all of the canals and the main irrigation works and the equalizing reservoir and the Potholes Reservoir, of course, are designed for the full acreage, so they are now carrying a partial flow, but it is an operating project. By virtue of the small irrigation base, naturally operation and maintenance costs are higher than they are going to be per acre for the ultimate development.

Mr. HAND. Thank you.

YAKIMA PROJECT, KENNEWICK DIVISION

Mr. EVINS. The next project under construction is the Yakima project, Kennewick division, estimated to total obligation $12,969,000. Appropriation requested for 1956, $3 million. We will insert in the record 259 through 261 of the justification and a general statement.

(The matter referred to is as follows:)

YAKIMA PROJECT, WASHINGTON-KENNEWICK DIVISION

CONSTRUCTION

The Kennewick division, last unit of the Yakima project, lies in southeastern Washington near the Handford Works of the AEC. It will provide irrigation water to 14,534 acres of new land and to 4,637 acres of land presently inadequately served by a wornout pumping system. A 12,000-kilowatt powerplant will produce 70 million kilowatt-hours of electrical energy annually. An amendatory repayment contract, covering payment of irrigation costs, was executed by the Secretary of the Interior July 22, 1953.

Progress to December 31, 1954

The Kennewick division, under construction since January 1953, is 49 percent completed. The Chandler Canal, excepting its upper 2.3 miles, is complete. Chandler power and pumping plant is 65 percent completed and its discharge pipeline 40 percent completed. The first 2 miles of the irrigation Main Canal are complete. The 2 hydraulic turbines to drive the irrigation pumps have been delivered to the job site and the 2 turbines to drive the powerplant generators are 80 percent completed. Manufacture of the 2 generators is 80 percent complete and the 2 pumps 60 percent. Bids were opened in December for an additional 10 miles of irrigation Main Canal. Design data has been prepared for all remaining work excepting some laterals.

Program for last half of fiscal year 1955

Construction work and manufacture and installation of equipment for the Chandler power and pumping plant under existing contracts will continue, and a separate installation (completion) contract will be awarded this spring. Construction will be started to enlarge certain facilities at the existing Prosser diversion dam and also to enlarge the existing 2.3 miles of Prosser Canal between the dam and the Prosser power plant so it will serve as a section of the larger Chandler Canal.

Construction contracts will be awarded and work underway on the remaining 41 miles of irrigation Main Canal, and on most of the remaining irrigation laterals, and also on the relift pumping plant, siphon and wasteway at Amon. Preparation of all remaining design data will be completed during the balance of this fiscal year. Eight construction contracts will be underway by June 1955.

Fiscal year 1956 program

Of the $3 million requested funds, $710.000 will be required for completing construction and supply contracts in force June 30, 1955, for the Chandler power and pumping plant and appurtenant works, $200,000 for completing enlargement of the Prosser Dam and Prosser Canal, $1,280,000 for completing the first 25 miles of main canal and laterals and continuing work on the remaining 16 miles of canal, and $240,000 will be required for essentially completing Amon pumping plant, siphons, and wasteway. All of the above work will have been started before fiscal year 1956.

New contracts to be awarded in fiscal year 1956, covering all remaining construction to irrigate the lands of the Kennewick division, will include division No. 4 laterals, the Amon Canal and laterals, and Yakima River improvements. Contracts for construction of the Highlands feeder canal and laterals and Badger laterals are scheduled for award in June 1955. Progress earnings on these contracts during fiscal year 1956 plus miscellaneous costs of fencing, right-of-way relocations, procurement of operating equipment, engineering, inspection and administration, require a total of $570,000.

Water to serve 6,779 acres under the first 25 miles of main canal will be available during the 1956 irrigation season.

Water will be available to all lands of the Kennewick division for the 1957 irrigation season. Energy generation from the 12,000-kilowatt Chandler powerplant will begin in September 1955.

YAKIMA PROJECT, KENNEWICK DIVISION, WASHINGTON—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$12,969,017
Total obligations to June 30, 1954		4,876,909
Allotment, fiscal year 1955	$4,000,000	
Prior-year balance available	96,139	
Total obligations, fiscal year 1955		4,096,139
Allotment, fiscal year 1956	$3,000,000	
Total obligations, fiscal year 1956		3,000,000
Balance to complete		995,969

Work proposed, fiscal year 1956

Prosser diversion dam and headworks ($57,339): Construction will be completed with progress payments to be made under the construction contract awarded in fiscal year 1955.

Chandler pumping plant ($275,627): Construction will be completed with progress payments to be made under the prime contract awarded in fiscal year 1954 and the completion contract awarded in fiscal year 1955. Funds are also required to complete procurement of miscellaneous equipment and supplies required under the construction contracts completing this year.

Amon pumping plant ($164,000): Progress payments will continue on the prime contract awarded in fiscal year 1955 and work will be started on a new contract to be awarded late in fiscal year 1956 for completion of the discharge line. Funds are also required for completion of payment to the pump-and-turbine supplier under a contract already in effect and for additional minor equipment and material required to support the prime contract.

Chandler Canal ($76,348): Funds are required for continued progress payments under a contract awarded in fiscal year 1955 for enlargement of the upper 2.3 miles of this canal and for minor completion work on both sections of this canal. This canal is used for the power and pumping facilities and is scheduled for completion in line with the initial date for power generation.

Irrigation canal and wasteways ($1,185,266): Construction will be completed under contracts awarded in fiscal year 1955 calling for construction of 23.1 miles of canal and a 4-mile long wasteway. Progress payments will continue on an additional contract awarded in fiscal year 1955 for construction of 18.5 miles of canal and a wasteway. Funds are also required for the initial priming, puddling, and testing operations which will start in the spring of 1956.

Laterals ($593,116): These funds will complete contracts awarded in fiscal year 1955 for construction of laterals serving 13,316 acres. Priming, puddling, and testing will be completed on laterals serving 6,779 acres. Progress payments will also be made on contracts initiating construction of laterals serving the remaining 5,855 acres.

Drains and observation wells ($4,000): These funds will provide for preconstruction work on the drainage system as required.

Chandler power plant and switchyard ($381,745): These features will be completed, with funds utilized for payment of existing contracts for generators and construction work. Funds are also required to complete other supporting construction and supply contracts under the major construction contracts. Initial power is scheduled for September 1955.

Warehouse, residences, and telephone system ($65,616): Progress payments made on the contracts already in effect will complete the residences and utilities at Chandler power-and-pumping plant. Funds are also required to initiate a contract for construction of a residence at Amon pumping plant and wasteway. Telephone facilities will also be completed for the Chandler and Amon sites.

Wildlife fence, fish screens and ladders, river improvements ($155,802): Progress payments on contracts awarded in fiscal year 1955 covering construction of the fish screens and ladders will complete this work. Channel improvement work in the Yakima River to confine low flows will be started upon operation of the Chandler Canal in September 1955.

Operation and maintenance equipment ($20,000): Procurement of the initial equipment and work tools required for the irrigation operation and maintenance program is being accomplished during the last years of construction to take advantage of economical purchases of good equipment that may be available on surplus and transfer lists from all agencies.

YAKIMA PROJECT, ROZA DIVISION

Mr. EVINS. The next project is the Yakima project, the Roza Division.

The reporter will insert in the record page 269 of the justifications.

(The matter referred to is as follows:)

YAKIMA PROJECT, ROZA DIVISION, WASHINGTON—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$22,172,147
Total obligations to June 30, 1954		18,542,314
Allotment, fiscal year 1955	$79,000	
Prior year balance available	4,792	
Total obligations, fiscal year 1955		83,792
Allotment, fiscal year 1956	75,000	
Total obligations, fiscal year 1956		75,000
Balance to complete		3,471,041

Work proposed, fiscal year 1956

Completed facilities: Completed and placed in service in prior years.

Drainage system ($65,000): Investigations and planning for a definite drainage plan on a projectwide basis will continue. Agreement to such a plan and a determination of the portion of the obligations to be assumed by each of the various drainage and irrigation districts, and other country organizations involved, will be sought. Construction of minor drainage facilities in areas requiring immediate relief is planned.

Roza powerplant: No funds requested.

General property ($10,000): Revisions to be made to a portion of the present warehouse to provide suitable office space for the Roza Irrigation District.

CONSTRUCTION OF POWERPLANT

Mr. EVINS. In 1954 the Bureau of Reclamation requested funds for the Roza powerplant which was specifically deleted by the Congress.

In the fiscal year 1955 the Bureau did not request funds for the powerplant despite virtual completion of the project, nor has the Bureau requested funds for 1956.

Yet on August 4 of last year the Bureau executed an amendatory repayment contract which made full irrigation repayment contingent upon construction of the powerplant, assigning $1,137,118 of the irrigation cost to revenue to be derived from power sales.

In executing such a contract do not the officials of the Bureau feel that you have somewhat broken faith, or ignored the specific direction of Congress?

Are there any comments on that?

Mr. DEXHEIMER. Yes, sir.

We had previously requested funds for the construction of the Roza powerplant. We have certain facilities, including transmission lines and the excess capacity in the Roza Canal which were put in anticipating the completion of the powerplant.

Power for irrigation pumping and other uses in the meantime has been purchased.

The completion of that powerplant would complete the overall project and probably make it possible for us to turn the whole thing over to the water users.

Mr. EVINS. You say the powerplant has been purchased or the pumping?

Mr. DEXHEIMER. No, sir, the energy for the irrigation pumping has been purchased in the absence of this powerplant.

Mr. EVINS. What is the status of the powerplant at this time?

Mr. DEXHEIMER. Certain moneys have been spent, as I pointed out, transmission facilities and capacity in the canal to operate the powerplant, but the powerplant has not been started.

Mr. EVINS. How much money overall has been spent for toward the development of the powerplant?

Mr. DEXHEIMER. About a million dollars in the canal capacity allocated to power and transmission facilities, $894,160.

Mr. EVINS. Why have you not requested funds in the 1956 budget to complete this project, or to make further construction advances?

Mr. DEXHEIMER. They were eliminated in the budget, sir.

Mr. EVINS. I think that gives the committee the answer.

The Bureau of the Budget struck them out in this budget even though the Bureau of Reclamation had initially requested it?

Mr. DEXHEIMER. Yes, sir.

Mr. EVINS. Can you repay these costs without the powerplant?

Mr. DEXHEIMER. Not entirely. The financial assistance need to repay the irrigation cost amounts to $1,137,000, which could be obtained from power revenues if the powerplant were built.

Mr. EVINS. In other words, the powerplant has been stricken out by action of the Bureau of the Budget, yet a contract has been entered into with water users to which you have assigned $1,137,000 on the irrigation cost from power revenue which you will not receive?

Mr. DEXHEIMER. Yes, sir.

Mr. EVINS. Is it the plan, unless funds are later provided for the power facilities, to raise the rates to the consumers, the water users, to absorb this $1,137,000 which is now set aside for power?

Mr. DEXHEIMER. We have not anticipated that so far as that is concerned. We anticipate that sometime in the future we will get funds to complete the powerplant.

Mr. EVINS. In other words, the Bureau of Reclamation recognizes the need, the necessity, in fact has already contracted with users recognizing the waterpower income, but that is being denied by action of the Bureau of the Budget?

Mr. DEXHEIMER. Yes, sir.

Mr. EVINS. Unless this committee or the Congress takes action the Bureau of Reclamation will not be in a position to recover the funds which you had previously anticipated?

Mr. DEXHEIMER. No, sir; not at the present time unless some other arrangements could be made.

Mr. EVINS. You would also have a waste of at least a million dollars which has been invested in this powerplant to date?

Mr. DEXHEIMER. In the excess capacity in the canal; yes, sir.

Mr. EVINS. Do you have any other comments, Mr. Commissioner, or Mr. Nelson, with respect to this project or also the Yakima project in general?

Mr. NELSON. No, sir.

Mr. DEXHEIMER. We have nothing further.

Mr. JENSEN. It is true that the committee denied the appropriation a few years ago for this Roza powerplant. We did it on the basis that the project was receiving, and would continue to receive, power at a very low rate.

Can you tell us now what you are paying for power for this project?

Mr. NELSON. Yes, sir; they are buying power under the E–4 Bonneville rate, which figures delivered at the nearest Bonneville substation about 2.45 mills, I believe, per kilowatt-hour.

Mr. JENSEN. I think every member of the committee, both the Interior Subcommittee on Appropriations of the House and Senate concurring, did not feel justified in appropriating money for this powerplant, due to the fact that sufficient power was readily available at such a low price, and then another thing, the Roza project is a very high acreage income project.

I might tell you that I had these two water users on the power project tell me several years ago they would like to pay the whole thing off over a period of 5 years and they can do it very easily because of the high acreage income.

They said, "We can pay it off in 5 years."

Now, in the face of those two things, the committee did not feel justified in appropriating money for this powerplant.

No doubt the Bureau of the Budget saw the picture. I am going to be perfectly frank that I am surprised that the Bureau of Reclamation asked for money to build this powerplant at this time because certainly you cannot start to generate power at this plant for any such amount as 2 or 3 mills a kilowatt, by any stretch of the imagination.

My position has been made very clear over the years on this item just as I have explained it.

Mr. EVINS. Would you point out the Roza project on the map and explain the situation to us?

Mr. NELSON. Perhaps the best thing to do is to refer to the map in the justification material, although I can show it to you with respect to the area as a whole on the Yakima River, and the powerplant would be located approximately on the outskirts of the city of Yakima, Wash., a 165-foot drop from the canal to the Yakima River.

Mr. EVINS. Was this site considered and evaluated by the Corps of Engineers?

Mr. NELSON. No, sir. This is not on the river. That is a site to utilize the drop from the irrigation canal back to the river.

Mr. EVINS. It is an evaluation of the Bureau of Reclamation?

Mr. NELSON. Yes, sir.

Mr. EVINS. The Corps of Engineers has not considered whether or not it was a feasible or desirable project?

Mr. NELSON. No, sir; it is not a natural site. It is an artificially created site, by virtue of the irrigation project.

Mr. EVINS. In most all these other reclamation areas where you have an abundance of water stored, for irrigation purposes, you also have power facilities?

Mr. NELSON. Yes, sir.

Mr. EVINS. But this one here has been denied and you have repeatedly requested funds of the Congress to complete the development of this powerplant?

Mr. NELSON. Yes, sir.

Mr. EVINS. And you have expended more than a million dollars for that purpose when the work was halted?

Mr. NELSON. Yes, sir.

Mr. JENSEN. Now wait. Excuse me, Mr. Chairman.

Mr. EVINS. I yield to the gentleman.

Mr. JENSEN. Did I understand you to say "Yes" to the Chairman's question or statement that you had already spent a million dollars in the advance planning or whatever you call it for this power project for construction?

Mr. NELSON. It was for the construction of the power canal capacity.

Mr. JENSEN. Power canal capacity. Will you explain that, please?

Mr. NELSON. Yes, sir.

If the irrigation canal were built only for irrigation and power capacity was not included, the size would have been about 1,200 second-feet.

The project plan which was developed in 1932 originally contemplated a power canal capacity of 900 second-feet, so that the canal was actually built 900 second-feet over and above the capacity that would have been required for irrigation, for the first 11 miles.

Mr. JENSEN. When was that built? What year?

Mr. NELSON. That was built in the years 1935 and 1936. The dam was designed with gate control structure to handle that amount of water; two tunnels and canal were overbuilt and the wasteway was designed with gates and an afterbay was built and a forebay was built at the site of the powerplant to handle the power water back to the river.

Power water would be stored irrigation releases that can be put down through the Roza Canal and dropped back to the river ahead of the point of diversion for other units of the Yakima project.

The powerplant has always been a part of the engineering plan for the Yakima project.

Mr. JENSEN. Do you mean to say that had you not anticipated the powerplant it would not have been necessary to make your canal as large?

Mr. NELSON. That is correct.

Mr. JENSEN. Now, you had to build a dam, did you not?

Mr. NELSON. Yes, sir.

Mr. JENSEN. Just what part of the installation, of the project, was affected by the anticipation of the building of the powerplant?

Mr. DEXHEIMER. Mr. Jensen, if you will refer to the map in our justification, page 301, you will notice at the top of the map the diversion dam and headworks, water is diverted through a tunnel there and on down through the works and you will find at the river there the Roza powerplant, and substation marked up in the left-hand corner of the map.

It involves those two tunnels.

Starting with the diversion works at the top there, the tunnel No. 1, the section of the canal, and tunnel No. 2 leading down into the powerplant site. Those works were enlarged to that additional 900 second-feet capacity for the use of the power rather than irrigation.

And that additional cost involved in those works down to that point essentially constitutes the million-dollar investment that was made when the works were built anticipating that the powerplant would be put in.

Mr. JENSEN. Do you mean to say that if the powerplant is not put in that that million will have been wasted?

Mr. DEXHEIMER. It is of no use to the irrigation features of the project.

Mr. JENSEN. Will you also admit that is the first time that was ever brought to the attention of the committee?

Mr. DEXHEIMER. I don't believe so, Mr. Jensen. I think these figures have been brought out before.

Mr. JENSEN. I would like to see them. This is the first time I have ever heard of them.

Mr. EVINS. The figures, but maybe they have not been explained as they are explained now?

Mr. JENSEN. That is right.

Mr. NELSON. That is entirely possible.

Mr. JENSEN. I am sure that is right. You possibly have made a statement, a written statement and submitted it for the record, but in open testimony that has never been testified to before this committee to my knowledge.

Mr. DEXHEIMER. I personally couldn't say.

Mr. JENSEN. Not only since you have been in, Mr. Dexheimer, but long before that, ever since this project at least for the past 10 years.

Mr. DEXHEIMER. I regret that, Mr. Jensen. We are trying to make this thing as clear as possible.

Mr. JENSEN. I am glad you are bringing it out now because certainly I am sure that every member of this committee, and it is quite possible that every member of the Senate Interior subcommittee, have never had any information similar to what you are giving us today regarding this million dollars which you say has been expended and will be of no use if a powerplant is not built.

Mr. DEXHEIMER. Yes, sir. I think it was in the written justification last year.

Mr. JENSEN. It has never been brought out in open testimony, I can assure you of that, before the House committee, at least.

Mr. DEXHEIMER. I would like to point out also that this project was planned in the early thirties and there was not available at that time the Bonneville power that we later were able to get by the time the project was built at that cheap rate.

Mr. JENSEN. The chances are at the outset, in the early thirties, when this project was being planned and construction was started,

had you known then that Bonneville power would have been available, the Bureau of Reclamation never would have asked for a powerplant to be a part of this project because it just is not economically feasible.

Mr. DEXHEIMER. If I may, I would also like to point out that completion of this powerplant would do this: It would furnish pumping power at a comparable rate of around 2½ mills for a large number of pumps which are necessary to the irrigation.

Mr. JENSEN. It would do what?

Mr. DEXHEIMER. It would furnish pumping power at a comparable rate to the Bonneville rate now at about 2½ mills.

Mr. JENSEN. You would have to subsidize this project by the Bonneville power revenues at no end in order to sell power at 2½ mills.

Mr. DEXHEIMER. In addition to that there will be commercial power for sale which will pay off the million dollars already invested plus the cost of the powerplant, with interest, within a term of 50 years and still make it possible to furnish the pumping power at that pumping rate.

So that I do not believe in this particular case it would be a detriment and the water users have insisted through their board of directors that they did not want to take over this operation of the project until that had been completed.

ANTICIPATED COST OF POWER

Mr. JENSEN. What do you anticipate selling the power for at the Roza powerplant, to commercial users?

Mr. NELSON. To commercial users the power would be disposed of presumably through the Bonneville system and Bonneville has indicated in the past that they would be able to amortize that part which is allocated to commercial power.

I would like to clear up another misunderstanding if I may.

It is true, as you brought out earlier, Congressman, that power at the Bonneville substation can be purchased at—the actual figure last year was 2.35 mills, but by the time it is delivered to the water users' pumps the actual delivered cost to the water users works out one-half mill per kilowatt-hour less with the power project plant in than without the power project plant.

The reason is that the power project plant under the irrigation plan of development would also include the distribution system to the pumps and would carry the operation and maintenance of the project transmission lines to the pumps.

So that will result in a delivered cost of 3.25 mills and the delivered cost now, using the E–4 rate, and then on top of that, adding operation and maintenance of the transmission and distribution facility, works out to be 3.75 mills.

So there is a difference of one-half mill in favor of the plant for its contemplated irrigation use.

I do not believe that has been adequately explained in the past either, but those are facts. That is why water users very strenuously want to see this development completed.

For the life of their project, they will have an allocation of pumping power that will not be subject to rate increases as the average cost of the Federal system goes up, as new projects are added.

In other words, that pumping power cost is tied to the actual cost of this plant which they feel is developing a power drop within their irrigation system.

Mr. JENSEN. It is an utter impossibility for me to understand how you can build a hydropower plant under present costs and sell that power, under the little program you just explained, to those water users for less than the Bonneville rate which exists today. That is just beyond me, Mr. Nelson.

Mr. NELSON. One of the reasons is, sir, that if we had to build a dam and storage and all the facilities at the present price, we couldn't do it on that small plant, but it happens that the diversion works, the canal capacity, everything except the actual powerhouse building, and the units and the penstocks have already been built at prices that prevailed in the early thirties.

One of the reasons that the plant was not built then was that the funds available were rather limited and the irrigation district was a party to this, they said, "Let us put all the money we can get into completing all the irrigation facilities first because, after all, we have to have the gravity canal before we can do any pumping."

So we took all the money we had from 1935 to 1941 and put it into irrigation facilities, the canal, and the lateral system.

Then along came the war. Materials were critical, and we could not build the small powerplant.

Immediately after the war, the pumping plants were built and for one reason or another we have not gotten the story of the powerplant across during the ensuing years, but the cost of that plant will be recovered and it will be to the advantage of the water users to have it built.

Mr. JENSEN. You said that funds were limited before the war. I wonder if we do not have a limit now. We have a Federal deficit of $270 billion.

I just wonder if we are in a better position now than we were then to expend the peoples' money, all the peoples' money.

You have a project here that has been fully developed and is a going concern and has a high acreage income. Should they not be able to take care of their own affairs in a very wonderful manner when they can buy power for the Bonneville postage stamp rates. I still am not sure that even though you have spent a million dollars to build this powerplant we would not be throwing good money after possibly bad money if we now appropriated over a million dollars to build a powerplant.

Mr. EVINS. It appears to me from my study of the justification that we built the dam, we built the pumping station, we built the canal, all complete, anticipating the power unit to be installed. A million dollars has been expended for that.

The Bureau of Reclamation has entered into contract with the water users and allocated a certain amount of money to power which is not an accurate or fair figure, it is a false figure because there is no power being produced.

Unless something is done in this regard we will have to renegotiate with these water users plus waste a million dollars which has already been expended.

I note in the hearings on the reclamation budget request of 1954, an exchange between Mr. Lineweaver of the Bureau of Reclamation, and Congressman Budge, on the Roza project.

Mr. Jensen may not have been there.

Mr. LINEWEAVER. It is my recollection that the Roza division was authorized in 1932 and construction got underway some years later. The first time I was at the project was in 1937. There were some readjustments in the location of the pumping plant, but the major canals and laterals are essentially the same as originally located.

Now, I understand that the major canals were put in, including a capacity of about a thousand second-feet, I think for this powerplant when the main Yakima canals were built some years ago.

In other words, the canals were built for the powerplant.

Mr. MARKWELL. The cost was about $1 million, as I recall.

Mr. BUDGE. I note there is only one authorization for this project listed, November 6, 1935. I assume if there had been any substantial change there would have been a reorganization.

Mr. MARKWELL. There has not been on the Roza.

In other words, there has been no change.

Mr. JENSEN. I say in all seriousness that this is the first time I have ever heard of this million-dollar item.

Mr. EVINS. You state today that there has been no change in the plans except for the denying of the funds by the Bureau of the Budget?

Mr. DEXHEIMER. That is correct, and we didn't have it in our budget last year and I do not think the questioning gave me an opportunity to explain this last year when we might have before the House committee.

Mr. EVINS. You feel that it is sound economy and that it would be money well spent and it would develop the project to its fullest maximum if you went ahead with the power unit which could be installed. It would also tie in with the contract rates for water users which you have already negotiated?

Mr. DEXHEIMER. Yes, sir.

REHABILITATION AND BETTERMENT, BUREAU OF RECLAMATION

Mr. EVINS. On construction and rehabilitation, Mr. Reporter, insert in the record pages 315 and 316.

(The material referred to is as follows:)

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS—ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$27,622,566
Total obligations to June 30, 1954		11,090,576
Allotment, fiscal year 1955	$1,583,799	
Prior year balance available	90,940	
Total obligations, fiscal year 1955		1,674,739
Allotment, fiscal year 1956	$2,125,000	
Total obligations, fiscal year 1956		2,125,000
Balance to complete		12,732,251

Work proposed, fiscal year 1956

Rehabilitation and betterment work will be continued on six projects during the year. Rehabilitation of two of these projects, the Shoshone project in Wyoming, and the Milk River project in Montana, are scheduled for completion by the end of fiscal year 1956. In addition, work will be initiated on the Arnold project, the Medford and Rogue River Valley Irrigation districts of the Rogue River Basin project, and the Orchard Mesa division of the Grand Valley project.

The Arnold and Grand Valley projects will also be completed by the end of the fiscal year.

Detail of work proposed, fiscal year 1956

Arnold project, Oregon ($90,000): The program for fiscal year 1956 provides for the replacing of 6 deteriorated wood flumes, totaling 2,848 lineal feet in length, with semicircular metal flume supported by concrete footings and creosoted fir framing. Continued maintenance of its large failing flumes appears to be beyond the ability of the district. Economy of the community would be seriously affected if irrigation were discontinued. The district desires to replace all flumes which are now seriously deteriorated and also those flumes which have a remaining life expectancy of less than 5 years. When a flume reaches the age and condition where replacement will be needed in a period of 5 years or less, maintenance costs usually become heavy. Every year, more of the planks and timbers need replacing, requiring increasing expenditures to keep the flumes in operating condition. The old flumes also waste considerable water through excessive leakage.

Belle Fourche project, South Dakota: Balance of work scheduled after fiscal year 1961.

Bitter Root project, Montana: Scheduled for completion in fiscal year 1955.

Boise-Black Canyon Dam, Idaho ($260,000): This amount will be used to initiate completion work on the downstream face of the spillway section and the placing of stabilization concrete on the abutment sections of the dam. The Black Canyon Dam is the key structure of the Boise project irrigation and power systems. Emergency measures to protect the stability of the structure have been taken. The fiscal year 1956 program provides for the initiation of the actions necessary to complete the rehabilitation of the dam.

Grand Valley project, Colorado ($150,000): Program for fiscal year 1956 includes the replacement of flumes Nos. 1, at station 84+99; 2, at station 136+99; 3, at station 333+17; 4, at station 433+64; and Mutual Mesa flume; all of these structures are on the lower lift canal. On the upper lift canal, flumes Nos. 1, at station 93+80: 2, at station 155+51; 3, at station 393+85; 4, at station 562+59 will be replaced as well as 450 feet of bench flume between flume No. 1 and flume No. 2. The tailrace structure on the pumping plant would be modified to include new power-operated gates, an activating motor and necessary foundation and protective work.

Many structures on the Orchard Mesa division have been used beyond their economic lives and are in very poor condition. Material and manpower shortages existing during the past war years prevented the water users from accomplishing badly needed repair work. The present rehabilitation and betterment requirements are beyond the water users' financial ability to handle concurrently with the expenditures.

Humboldt project, Nevada: Scheduled for initiation and completion in fiscal year 1955.

Mr. EVINS. Are your repayment contracts in existence to cover the cost of these programs?

Mr. NELSON. Yes, sir; repayment contracts are in existence to cover the cost of three of them and there is a current negotiation for the fourth. Three in existence are the Boise project, Black Canyon Dam, Owyhee project.

The other one is Arnold Irrigation District.

I should say 2 of the 3. The Arnold district contract is being renegotiated.

Incidentally, that is a private development dating from about 1908.

Mr. EVINS. You are requesting $552,000 for construction and rehabilitation?

Mr. NELSON. Yes, sir.

Mr. EVINS. That includes the Arnold project in Oregon, the Boise project in Idaho, and the Owyhee project in Oregon and Idaho.

OPERATION AND MAINTENANCE, BUREAU OF RECLAMATION

Under operation and maintenance I notice your justification has request for funds for 5 projects in total amount of $5,517,000.

Mr. Reporter, insert in the record the pages as follows: 520–523, 528–530, 536–537, 571–575, and 581–583.

(The information referred to is as follows:)

MINIDOKA PROJECT, IDAHO—ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$349,134
Fiscal year 1955:		
Allotment	$563,500	
Funds advanced by water users	107,000	
Total obligations, 1955		670,500
Fiscal year 1956:		
Allotment	$877,000	
Funds advanced by water users	96,000	
Total obligations, 1956		973,000

Work proposed, fiscal year 1956

	Program, 1956	Increase (+) or decrease (−) from 1955
MULTIPURPOSE FACILITIES		
Storage system: Normal operation and maintenance of 4 of the project reservoirs which are used for storage and flood control, namely, Jackson Lake, Island Park, American Falls, and Minidoka Dam	$97,300	
Replacements and improvements: For purchase of additional right-of-way at American Falls Reservoir, completion of gate tender's cabin at Jackson Lake Dam, investigation of pier repairs at American Falls Dam, and the normal replacement of 1 passenger car, 1 truck and 2 pickup trucks	22,500	+$4,500
Total obligations, multipurpose	119,800	+4,500
IRRIGATION FACILITIES		
Storage system: Normal operation and maintenance of 1 project reservoir	8,700	
Primary pumping: For operation and maintenance of 67 pumps and motors on deep wells including purchase of power for pumping. The increase is due to operating 30 new wells for the first delivery of water in fiscal year 1956	163,350	+42,237
Distribution system: For the operation and maintenance of the lateral system for 26,831 acres of land. The increase is due to operating the system for 10,648 acres additional land in fiscal year 1956	59,600	+25,058
Drainage system: For the operation and maintenance of the drainage system for 26,831 acres of land. The small increase is for the increasing drainage required as new lands are put under cultivation	4,350	+205
Total obligations, irrigation	236,000	+67,500
POWER FACILITIES		
Electric generation: For normal operation and maintenance of the Minidoka powerplant	89,452	
Other production expense: For the purchase of power to meet power system demand in excess of plant capacity. Increase due to anticipated system load growth. This item requires no funds from Minidoka project but represents nonappropriation transfer from Government-owned powerplants. Repayment to be accomplished by the application of a power rate for energy delivered to respective power customers	317,000	+50,000
Transmission and distribution expense: For normal operation and maintenance of transmission facilities	84,348	
Replacements and improvements: For purchase of spare transformers, miscellaneous replacements to the system, purchase of resistance temperature detectors for generators, purchase of carrier and telemetering equipment, extension to the system to meet customer demands, pole replacements, 1 spare oil circuit breaker, completion of the West End intertie and Heyburn substation, rehabilitation of the powerhouse crane, purchase air circuit breakers for old unit exciters, replace station battery, purchase capacitors, purchase windings for old unit generator, purchase portable testing equipment, radio and miscellaneous small tool replacements. 1 tractor type truck will be purchased and 1 passenger car, 1 truck, 2 pick-up trucks and 1 utility patrol vehicle will be replaced	443,440	+230,500
Subtotal, power	934,200	+280,500
Project energy interchange	−317,000	−50,000
Total obligation, power	617,200	+230,500
Total obligations, all facilities	973,000	+302,500

Boise Project, Idaho-Oregon—Estimate for Operation and Maintenance

Summarized financial data

Total, fiscal year 1954	$521,345
Fiscal year 1955:	
Allotment	467,800
Funds advanced by water users	15,000
Total obligations, 1955	482,800
Fiscal year 1956:	
Allotment	335,000
Funds advanced by water users	15,000
Total obligations, 1956	350,000

Work proposed, 1956

	Program, fiscal year 1956	Increase (+) or decrease (−) from fiscal year 1955
MULTIPURPOSE FACILITIES		
Storage system: For continued operation and maintenance of Anderson Ranch Dam and Reservoir. $2,500 of the increase is to cover cost of repairs to the spillway. Erosion and sloughing of rock beneath a small portion about ⅓ of the way up will have to be filled with concrete. The remaining $250 is to pay annual salary raises to classified employees	$13,650	+$2,750
Carriage system: For operation and maintenance of the Boise River diversion dam and headworks and Black Cavnon Dam and headworks	11,350	−250
Replacements and improvements: $100 of this amount will provide for replacement of miscellaneous shop tools at the Boise River diversion dam. The remaining $5,000 is to cover purchase and installation of a battery-operated remote control motor to operate the fixed wheel gate at Anderson Ranch Dam in the event of a power failure by rupture of a penstock. This item is a safety precaution. Should the penstock immediately in back of the powerplant break the switchyard would be flooded in a matter of minutes causing a power outage. The present control is operated electrically and would be useless should a power failure occur	5,100	+5,000
Total obligations, multipurpose facilities	30,100	+7,500
IRRIGATION FACILITIES		
Storage system: For continued operation and maintenance of Arrowrock Dam and Reservoir and Cascade Dam and Reservoir	30,500	----------
Primary pumping: The water users will operate and maintain these facilities comprising the C line pumping plant	----------	−55,950
Carriage system: The water users will operate and maintain these facilities	----------	−9,100
Distribution system: The water users will operate and maintain these facilities	----------	−58,500
Drainage system: The water users will maintain these facilities	----------	−1,200
Replacements and improvements: There are no requirements in fiscal year 1956 as the water users will operate and maintain the irrigation facilities, with the exception of the storage system	----------	−55,000
Total obligations, irrigation facilities	30,500	−179,750
POWER FACILITIES		
Electric generation: For normal operation and maintenance of the Black Canyon, Boise River diversion, and Anderson Ranch Dam powerplants and related facilities and Deadwood Dam and Reservoir. The increase of $1,050 is to cover annual salary increases to classified employees	115,000	+1,650
Transmission and distribution expense: For normal operation and maintenance of the system and for payment of wheeling charges to the Idaho Power Co. The increase will cover additional wheeling costs anticipated under increased power consumption	150,700	+14,100
Replacements and improvements: The amount requested will provide for a spare turbine runner at Black Canyon powerplant, replacement of 1 passenger car, 1 pickup, 1 truck and miscellaneous shop tools	23,700	+23,700
Total obligations, power facilities	289,400	+39,450
Total obligations, all facilities	350,000	−132,800

Hungry Horse Project, Montana—Estimate for Operation and Maintenance

Summarized financial data

Total, fiscal year 1954	$296,185
Allotment, fiscal year 1955	348,600
Total obligations, 1955	348,600
Total obligations, 1956	451,000

Work proposed, fiscal year 1956

	Program, 1956	Increase (+) or decrease (−) from 1955
MULTIPURPOSE FACILITIES		
Storage system: For continuation of the operation and maintenance of the Hungry Horse Dam, Reservoir and outlet works, including flood control operations, for guide service, and for financing the applicable portion of the project general expense	$164,500	+$17,037
Replacements and improvements: For replacement of 1 passenger carrying vehicle, 2 trucks, improvement of camp water system, completion of tailrace channel improvement, and turbine gallery noise suppression	79,900	+79,900
Total obligations—multipurpose	244,400	+96,937
POWER FACILITIES		
Electric generation: For continuation of operation and maintenance of the Hungry Horse powerplant, and for financing the applicable portion of project general expense	189,600	+7,600
Transmission expense: For operation and maintenance of transmission and switchyard facilities. Reduction is due to increased efficiencies in personnel utilization	17,000	−2,137
Total obligations, power	206,600	+5,463
Total obligations, all facilities	451,000	102,400

Columbia Basin Project, Washington—Estimate for Operation and Maintenance

Summarized financial data

Total, fiscal year 1954		$2,683,767
Fiscal year 1955: Allotment	$2,917,000	
Total obligations, fiscal year 1955		2,917,000
Fiscal year 1956: Allotment	$3,601,000	
Total obligations, fiscal year 1956		3,601,000

Work proposed, 1956

	Program, 1956	Increase (+) or decrease (−) from 1955
MULTIPURPOSE FACILITIES		
Storage system: For continuation of the operation and maintenance of the Grand Coulee Dam and Reservoir, for the expense of the guard force, for financing the applicable portion of the project general expense and service facilities, and for continuation of hydrologic and river control studies. The increase will restore the guard force to its normal complement and place the maintenance program on a sounder basis	$762,000	+$190,000
Replacements and improvements: For the purchase of drum gate seals, cable for 2 elevators, parts for outlet works gates, machine tools and equipment, 7 passenger vehicles, tugboat engine, and replacement of hull on power barge	55,000	+50,000
Total obligations—multipurpose facilities	817,000	+240,000

Work proposed, 1956—Continued

	Program, 1956	Increase (+) or decrease (−) from 1955
IRRIGATION FACILITIES		
Storage system: For the operation and maintenance of the Equalizing Reservoir and the Potholes Reservoir	$9,250	+$840
Primary pumping: For a full year's operation and maintenance of the Grand Coulee pump plant. The program has been decreased to reflect the elimination from this item of the costs associated with furnishing water to testing period acreages which is a construction charge	160,000	−13,810
Carriage system: For the operation and maintenance of the primary canals chargeable to development period operation and maintenance. Included are the main canal, the west canal through and including the 4th section, the east low canal through and including the 5th section, and the Potholes East Canal through and including the 4th section and the Eltopia Branch. Canal mileage will increase from a total of 188 miles at the start of the fiscal year to a total of 245 miles in April 1956. Acreages which can be served by the carriage system will be increased by 61,000 acres in the spring of 1955	95,500	+8,810
Distribution system: For a full year's operation and maintenance on the laterals serving 186,000 acres. In addition, the program provides for the initial operation and maintenance for the distribution system to serve the additional block of 61,000 acres which will enter the development period in 1956	656,250	+241,980
Drainage system: For normal operation and maintenance of the irrigation drainage system. The increase is in line with the availability of new facilities and the development of new acreages	27,500	+7,680
Replacements and improvements: Funds are provided for a reasonable replacement program on the irrigation system commensurate with the magnitude of the facilities which serve the development period areas	26,500	+26,500
Total obligations, irrigation facilities	975,000	+272,000
POWER FACILITIES		
Electric generation: For continuation of operation and maintenance of the Grand Coulee powerplants and appurtenant works; and for financing the applicable portion of project general expense and service facilities. Increase will provide a normal level of maintenance	1,169,110	+69,634
Transmission and distribution expense: For operation and maintenance of the transforming and switching facilities at Coulee Dam. Increase reflects a slightly higher level of maintenance	380,260	+14,672
Replacements and improvements: For replacement of coaster gate hoist controls, purchase of main unit field coils; replacement of oil level gages, install central air-pressure system for main unit governors, automatic lubricating system in left and right powerplants, oil bypass across main unit transformers, snow removal piping, potential transformers in switchyards, and automatic equipment for inert gas supply to transformers	188,630	+114,694
Total obligations—power facilities	1,738,000	+199,00
TOWN OF COULEE DAM MUNICIPAL AND LEASING PROGRAM		
Municipal operation and maintenance expenses: For continuation of the operation of the municipal functions of the town of Coulee Dam. Municipal functions have now been administratively segregated from the power, multipurpose and irrigation plant at Coulee Dam in anticipation of the eventual discontinuance of town operation by the Government. The municipal program reflects a balanced budget within anticipated revenues. Funds requested are those necessary to offset cash collections credited to town revenue but which are not available for expenditure and which must be appropriated. The program also includes funds to cover the cost of administrative assistance provided by the project. Reduction results from economies to be achieved in town operations in line with an anticipated reduction in revenues	56,800	−19,000
Housing and commercial leasing: For maintenance of Government-owned residential and commercial facilities. The cost of this program is financed wholly through voucher deductions and cash collections. Funds requested are those necessary to offset cash collections not available for expenditure and for the cost of project administrative services	14,200	−8,000
Total obligations—town of Coulee Dam municipal and leasing program	71,000	−27,000
Total obligations—all facilities	3,601,000	+684,000

YAKIMA PROJECT, WASHINGTON—ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$483,000
Allotment, fiscal year 1955	$501,250	
Total obligations, 1955		501,250
Allotment, fiscal year 1956	$447,000	
Total obligations, 1956		447,000

Work proposed, 1956

	Program, 1956	Increase (+) or decrease (−) from 1955
MULTIPURPOSE FACILITIES		
Storage system: For continued operation and maintenance of the 6 storage reservoirs, including coordination for flood-control purposes and preparation of and testing of a runoff forecasting formula for the Yakima watershed	$90,900	+$3,495
Carriage system: For continued operation and maintenance of Roza diversion dam and headworks and initial operation and maintenance of Prosser diversion dam and headworks and the 10.6-mile Chandler Canal. Previously the Prosser diversion dam and headworks were carried under power facilities as they served only the Prosser powerplant which is scheduled to be retired in fiscal year 1955. Increase is due mainly to inclusion of Prosser diversion dam and headworks under this system, and to initial operation and maintenance of Chandler Canal and appurtenent fish protective facilities	27,500	+21,841
Replacements and improvements: For purchase of minor capitalized equipment and work tools as required to carry out the operation and maintenance program on multipurpose facilities. Decrease due mainly to having no proposed construction or major repair work on structures and improvements	600	−2,300
Total obligations, multipurpose facilities	119,000	+23,036
IRRIGATION FACILITIES		
Primary pumping: For initial maintenance of the Chandler pumping plant during only the last quarter of the fiscal year. Total amount is an increase as this is the initial operation of the plant	600	+600
Carriage system: For continuation of normal operation and maintenance of headworks and diversion dams of Kittitas, Tieton, and Sunnyside Divisions and, until turned over to water users in January 1956, the Roza main canal and wasteways below mile 10.9. Decrease based on assumption Bureau will operate latter feature only during first half of fiscal year	66,500	−13,787
Distribution system: For continuation of normal operation and maintenance of the Roza Division gravity and pump lateral systems, including pumping plants, transmission lines (except 34.5 kilovolt line), pumping-plant substations, and purchase of power and pumping. Decrease is due mainly to the program being based on the district assuming on Jan. 1, 1956, the operation and maintenance of the lateral systems and pumping plants	180,800	−79,691
Drainage system: For adequate operation and maintenance of the drainage system. Decrease based on the District assuming on Jan. 1, 1956, the operation and maintenance work on this system	5,100	−3,400
Replacements and improvements: For replacement of 4 passenger-carrying vehicles, 1 TD-9 tractor, 4 pickup trucks, 3 1½-ton trucks, 1 other truck, and for purchase of other minor capitalized equipment and work tools as required for carrying out the operation and maintenance program	44,000	+14,300
Total obligations, irrigation facilities	297,000	−81,978
POWER FACILITIES		
Electric generation: For initial operation and maintenance of the Chandler powerplant for which initial generation is scheduled for September 1955. Increase is due to abandonment of the 2,400-kilowatt Prosser powerplant and the initial operation of the 12,000-kilowatt Chandler plant	23,600	+1,075
Transmission and distribution expense: For continued operation and maintenance of the Roza switchyard and 34.5-kilovolt transmission line and initial operation and maintenance of the Chandler switchyard. Increase is due to initial year of operation and maintenance on Chandler switchyard	7,400	+3,617
Total obligations, power facilities	31,000	+4,692
Total obligations, all facilities	447,000	−54,250

COST PER ACRE

Mr. EVINS. What is the average cost per acre for operation and maintenance on these irrigation projects?

Mr. NELSON. On an average in the Northwest operation and maintenance alone runs from $4.50 an acre to $5.75 on the Columbia Basin project, where there is a great amount of pumping to pay for.

That is operation and maintenance. The capital repayment would be on top of that.

Mr. JENSEN. On your capital payment the average is what?

Mr. NELSON. On the Columbia Basin project it will run an average of $2.35 per acre per year varied by land classes.

The average in the Northwest at this time, a combination of operation and maintenance and capital repayment on Federal projects is running from eight to twelve dollars per acre per year.

Mr. JENSEN. The water user will have to pay the operation and maintenance costs after the 10-year period has expired?

Mr. NELSON. Yes, sir.

Mr. JENSEN. Are you accepting or encouraging the water users to start repaying before the 10-year construction period has expired in such cases where they are able to do it?

Mr. NELSON. Yes, sir. Several of our projects do not have a 10-year development period. Since we appeared before this committer last year the Bureau has turned over two projects. We have turned over the North unit of the Deschutes project and we have turned over the Payette division of the Boise project, for operation by the water users and we have persuaded the Roza Division of the Yakima project to go over on an advance fund basis, so we are in this appropriation asking for a one-half year appropriation for Yakima-Roza, they are to start advancing operation and maintenance fund starting January 1, 1956.

The Bureau in the Northwest has turned over all the projects that can be turned over at this time.

The Columbia Basin project, of course, is still very early in the development stage.

The Minidoka North Side project does not have an irrigation district and the only remaining unit on the Yakima project is the Roza division.

Mr. JENSEN. The Yakima project proper was turned over several years ago.

Mr. NELSON. Yes, sir; and we are operating only the reserved works and the power facilities on the other five projects that were mentioned.

My breakdown shows about 30 percent of the request is for irrigation and 70 percent of that operation and maintenance request is for power and other multipurpose features.

EARLY REPAYMENT TO FEDERAL GOVERNMENT

Mr. JENSEN. A number of years ago Mr. Lineweaver urged the water users to start payment as fast as possible. He did that and he collected quite a little money in advance. They were very happy to pay in advance.

I think it is good, I think it is good for the water user, I think it is good for everybody concerned. I think it is good for the program because the more money that is covered into the Treasury or the reclamation fund the more liberal the Congress will be in appropriating money for irrigation projects, because you just have that much more income from which to appropriate revenue.

I was wondering if that method or policy was being continued. I think it is very important.

You have water users on a project already in production and then you have other projects, maybe adjoining projects, under consideration for authorization.

It encourages the Congress to look with greater favor on these projects when they pay them off as fast as they can, according to their ability to pay.

Lower Columbia River Fish Sanctuary Program

WITNESSES

WILLIAM HAGEN, JR., ASSISTANT CHIEF, BRANCH OF GAME FISH AND HATCHERIES, FISH AND WILDLIFE SERVICE

COL. WILLIAM WHIPPLE, EXECUTIVE FOR CIVIL WORKS, OFFICE OF CHIEF OF ENGINEERS

Mr. Evins. I believe that brings us to the lower Columbia River fish-sanctuary program. We revert to page 68 of the justification. I believe Mr. Hagen will make a general statement on this program.

Will you give the reporter your full name and position.

Mr. Hagen. My name is William Hagen, Jr., Assistant Chief, Branch of Game Fish and Hatcheries, Fish and Wildlife Service.

Mr. Evins. We will insert pages 68, 69 and 70 of the justifications.

(The matter referred to follows:)

CONSTRUCTION, GENERAL—LOWER COLUMBIA RIVER FISHERIES DEVELOPMENT PROGRAM

Summarized financial data

		Accumulated total percentage of estimated Federal cost
Total estimated Federal cost	$23,249,200	
Total appropriation to June 30, 1954	10,441,400	
Appropriation for fiscal year 1955	1,000,000	
Total appropriations to date	11,441,400	49
Appropriation requested for fiscal year 1956	1,400,000	55
Balance to complete after fiscal year 1956	10,407,800	

JUSTIFICATION OF ESTIMATE

Authorization: Act approved May 11, 1938 (52 Stat. 345), as amended by the act of August 8, 1946 (60 Stat. 932).

Location and description:

Hatcheries: Renovation and enlargement of 8 existing hatcheries, plus construction of 22 new stations and 1 nutritional laboratory. Location: 15 in the

State of Oregon and 15 in the State of Washington, all on tributaries to the lower Columbia River.

Stream improvement: A comprehensive program of stream clearance to make many additional miles of stream bed available for natural spawning; laddering hitherto impassable barriers in the streams to provide access for salmon and steelhead to their upper reaches; and installing a system of screens along those streams whose waters are utilized for irrigation or hydroelectric generation. Location: All those streams located within the Columbia Basin which are suitable for propagation of anadromous fish.

Facilities for project appraisal; biological and planning surveys: Necessary investigations and surveys prior to construction to determine feasibility and suitability of proposed locations. Construction of devices for measuring annual returns and progress made under the program. Location: Traps, racks, and weirs at strategic points on most heavily used tributaries to lower Columbia River.

Scheduled completion date

Current outlook places final completion, dependent on provision of funds as requested: Hatcheries, October of 1962; stream improvement, October of 1963; facilities for project appraisal, October of 1961.

Status

Hatcheries are 37 percent completed; stream improvement program, 11 percent; hatchery feed (management and improvement of artificial propagation), 100 percent; and facilities for project appraisal, 65 percent.

Justification

The development of the tremendous power potential of the Columbia River, as well as the control of floods and the needs of irrigation and navigation, have resulted in a program of construction of major dams. These structures have blocked and impeded the access of salmon and steelhead to their spawning areas. Additional dams will further reduce productivity and endanger the commercial, sport, and Indian subsistence fishery for these species, valued at approximately $20 million annually. To counteract, insofar as possible, the expected damage to this resource, the Fish and Wildlife Service, in cooperation with the States of Idaho, Oregon, and Washington, prepared a program for the maximum production of salmon and steelhead in the streams tributary to the lower Columbia River. The program includes tne clearance of obstructions from streams to permit passage of fish, the construction of fishways over waterfalls, and the construction of hatcheries and other facilities for the protection and development of salmon and steelhead.

By State laws, important tributaries to the lower Columbia River in the States of Washington and Oregon have been set aside as fish sanctuaries. Abatement of pollution in these tributary streams and in the main stem of the Columbia is progressing satisfactorily. Actions looking toward increased utilization and corresponding production of salmon and steelhead in the streams protected by law and in those where pollution is being abated await the receipt of additional appropriations to carry forward the program as originally set out.

Fiscal year 1956

The amount of $1,400,000 is required for fiscal year 1956 to maintain possibility of completing the program within the present delayed construction schedule. Funds requested will permit completion of 3 hatcheries started in fiscal year 1955, and provide planning and design in connection with 3 additional hatcheries; continue construction under the stream improvement portion of the program with new starts being made on 4 new fishways; complete screening installations on 3 tributaries, with planning and design funds for 2 additional; and cover costs of administration and supervision of the program.

GENERAL STATEMENT

Mr. HAGEN. In the interest of brevity I would prefer not reading the statement if it may be inserted in the record.

Mr. EVINS. You may proceed as you wish and insert your formal statement for the record.

(The statement referred to is as follows:)

Statement by the Fish and Wildlife Service

The Columbia River Fisheries Development Program

The Columbia River, the second largest in the United States, has been the producer of about 30 million pounds of salmon each year. The Indians have always been dependent upon the resource for food, while the whites, since the early 1800's, have profited greatly from the fishery.

The young salmon produced in the Columbia River and its tributaries migrate to the ocean and return some years later as large and mature fish to their home streams to spawn and die. The continued availability of the spawning areas obviously is necessary for perpetuation of the races. If we wish to enjoy and profit from this valuable renewable resource forever, we must permit access to the areas required for reproduction.

The construction of large dams in the Columbia River and its tributaries has completely blocked the migrations of adult salmon to hundreds of miles of spawning streams. Other dams impede the progress of salmon to available spawning and rearing areas. Still more dams are contemplated which will further limit the availability of the reproduction areas. Not only is there delay in the passage of adult salmon over dams provided with fish ladders but, in addition, the passage of young salmon downstream over and through each of these structures results in substantial losses of the young fish. The delay of upstream migrating adults at each dam can result in death before spawning, or completely ineffectual spawning.

The fisheries program under consideration was conceived by the Fish and Wildlife Service, together with the fisheries agencies of the States of Oregon, Washington, and Idaho. It has as its objective the development to the maximum of the salmon-producing potentials of the streams tributary to the lower Columbia River—generally downstream from most of the major dams contemplated. This program is expected to compensate in part for the anticipated damage to the fishery by the construction of dams.

The fisheries program was activated in 1949 with an initial appropriation by the Congress. In each subsequent year, funds have been provided and will be needed through 1960 or 1961 if the required facilities are to be provided.

Since the inception of the program, some 950 miles of spawning streams in the lower river area have been made available to salmon. This has been accomplished by the removal of literally thousands of large and small log and debris dams, and the blasting or laddering of waterfalls. Improved conditions and facilities in the streams have definitely increased the success of spawning although statistics will not be available for several years to assess fully the program achievements. For example, improvement of the falls at the mouth of the Klickitat River opened 54 additional miles of that stream into which several thousand silver and fall chinook salmon migrated. Similar utilization of other newly opened spawning areas has been observed. Project hatcheries have been producing young salmon for the stocking of these streams—56 million fry and fingerlings in 1953

The original concept of measures to preserve the valuable fishery of the Columbia River as outlined in appendix P of the Corps of Engineers' 308 review report (H. Doc. 531), included not only the lower river fisheries program but, also, the upriver runs of salmon were to be maintained insofar as possible by the inclusion of fishways in dams where necessary. Furthermore, it was recognized that action might be required at individual dams to take care of specific fisheries problems.

In the aggregate, the fisheries problems of the Columbia are very complex and are not clearly definable at the present time because of consideration being given to dams not previously considered for the immediate future.

Lower Columbia River Fisheries Development Program—Status of Funds

Construction

Expenditures and obligations, 1949 to Mar. 31, 1955 [1]

Agency	Appropriated, 1949–55	Expended and obligated	Percent of appropriated	Unobligated balance
Fish and Wildlife Service	$3,746,800	$3,142,900	84	$603,900
Oregon	3,403,700	2,492,800	73	910,900
Washington	4,290,900	3,849,100	90	441,800
Total	11,441,400	9,484,800	83	1,956,600

[1] Does not include $102,000 for river basin studies.

Estimated status of funds, June 30, 1955

Agency	Expended and obligated	Percent of appropriated	Unobligated balance
Fish and Wildlife Service	$3,589,800	96	$157,000
Oregon	2,708,900	80	694,800
Washington	4,244,600	99	46,300
Total	10,543,300	92	898,100

Appropriation requested, 1956, $1,400,000.

OPERATION AND MAINTENANCE

Expenditures and obligations, 1949 to Mar. 31, 1955

Agency	Appropriated, 1949–55	Expended and obligated	Percent of appropriated	Unobligated balance
Fish and Wildlife Service	$1,198,000	$902,800	75.3	$295,200
Oregon	573,700	555,900	96.8	17,800
Washington	739,000	719,000	97.2	20,000
Total	2,510,700	2,177,700	86.7	333,000

Estimated status of funds, June 30, 1955

Agency	Expended and obligated	Percent of appropriated	Unobligated balance
Fish and Wildlife Service	$1,140,000	99.1	$10,000
Oregon	621,700	100.0	0
Washington	739,000	100.0	0
Total	2,500,700	99.6	10,000

Appropriation requested, 1956, $1 million.

Mr. HAGEN. I would like to point out, if I may, that the fisheries program on the lower Columbia River has direct relationship to the projects with which you have been concerned most of the day.

The Columbia Basin comprises some 300,000 square miles in most of which salmon once spawned. The salmon spawn in their home stream, die, and the young descend the river to the ocean. Two or three years later they return as adult fish to their home tributary.

Salmon have been the source of food and the basis of an important industry on the Pacific coast for many years. The Indians were most dependent upon salmon for food, as were the early settlers.

The salmon produced in this basin are caught throughout the coastal waters of Alaska, British Columbia and the Pacific Coast States. The principal catch is in the extreme lower portion of the Columbia.

When Grand Coulee Dam was constructed it blocked access of salmon to the entire watershed upstream, although in cooperation with the Bureau of Reclamation, and with funds provided by the Congress, we established alternate facilities on waters below the dam, and have managed to maintain the production of fish from that area. The blocking of this area by Grand Coulee Dam and a similar blockade at Swann Falls on the Snake River, removed from further use by salmon is 60 percent of the total area of the Columbia Basin.

There has been considerable discussion of the proposed four dams on the lower Snake River and of Hells Canyon, as well as of a number of other dams in the area. All of these dams will be obstacles to the fish. The upstream-bound adult salmon will have difficulty ascending, while the young fish en route to the ocean will go through turbines or through spillways and many will be destroyed. Thus, when and if these and other dams are erected the salmon will be able to maintain themselves only with difficulty in the upper and middle river. The proposed Priest Rapids and John Day Dams will add to the difficulties.

The salmon when he starts from the ocean will leave on a time schedule. For example, he will require about 100 days to arrive at the middle fork of the Salmon River, some 800 miles upstream.

It has been estimated that Bonneville Dam delays these salmon in their upstream assent from 2 to 5 days. Thus if we consider Bonneville, The Dalles, John Day, McNary, and the four lower Snake dams as obstacles to be overcome, we can anticipate that many salmon never will arrive in time to spawn in the Middle Fork. They may become mature before they reach their home streams, or temperatures may be too low for effective spawning.

However, fish ladders are expected to be provided and if funds can be secured for studying the guidance of the fish, we anticipate that the Salmon River area—the greatest producer of salmon—will continue to contribute some production of salmon.

We come now to consideration of that with which we are immediately concerned. The lower Columbia River is generally considered as that portion of the watershed downstream from McNary Dam. In this area, becasue of past damage and in anticipation of further damage to the fishery by the upriver dams proposed and under construction, with funds provided by the Congress each year since 1949, we have cleared streams of debris and old logging dams. We have constructed hatcheries and fishways, and have screened irrigation diversions. These activities are intended to develop the production potential for salmon in the lower river area to the fullest extent to compensate in part at least for the loss of upstream production areas. Actually, only a very small portion of the streams in the lower Columbia River area are unobstructed by man today.

In the lower Columbia River area we have constructed or have under construction a number of hatcheries, indicated by the solid colors on the map.

To maintain this program of construction of hatcheries, screening of diversions, and constructing fishways, we are requesting a construction appropriation of $1,400,000 for the coming fiscal year.

In addition, for the operation and maintenance of these facilities as they are completed, the sum of $1 million is required as a minimum for 1956. Each year the operation and maintenance funds required will increase as the facilities are completed and are placed in operation.

Through this program, which is a cooperative one with the fishery departments of the States of Washington and Oregon, we hope to be able to double the production of salmon in the lower river area to compensate for the losses upstream.

The program is now approximately one-half completed. It had been anticipated that the construction phases would be completed by 1957. Because of various delaying circumstances it is now

apparent that construction will not be complete until 1960 or 1961, and then only if funds requirements are met.

Mr. EVINS. Mr. Hagen, all those little white spots indicated and shown on the map in the lower Columbia River, do they represent fish hatcheries?

Mr. HAGEN. Each fish indicates a fish hatchery.

Mr. EVINS. That is the red mark?

Mr. HAGEN. Yes, sir.

Mr. EVINS. What do the white marks indicate?

Mr. HAGEN. Those are dams.

Mr. EVINS. You paint to this committee the picture that the building of these dams on the upper Columbia River has destroyed or virtually destroyed the salmon industry?

Mr. HAGEN. Not as yet, sir. We do not believe that the industry will be destroyed if the lower river program goes forward and is completely activated, and if every facility is provided to preserve so far as possible the upper river runs of salmon.

This program is predicated primarily upon expected damage in the future from the construction of dams, although there has been damage to the fishery by dams already constructed.

Mr. EVINS. You picture a very bleak situation. It is the battle of the fish versus the dams.

Mr. HAGEN. I would not want to say that, sir, because we can get along with the dams if we maintain cooperative effort. As I mentioned, if the salmon have to go over many dams we may not be able to maintain the populations in their present abundance in the upper river.

Mr. EVINS. You are expending large sums of money for these escalators or ladders that the fish may ascend upstream.

Mr. HAGEN. That is correct. Each one of these dams has or will have a fish ladder for the ascent of the adults.

We do not yet have a facility that will safely bring the young fish downstream. We have some losses of downstream migrating fish going past Bonneville.

Mr. EVINS. In making this appropriation, should the committee feel justified in approving the fund, it would not only help the salmon industry, individually, but the Government operation equally as well?

Mr. HAGEN. It would help the industry and support the economics of the area if we could maintain the population of the salmon. They are valued at something over $17 million annually.

Mr. EVINS. The salmon industry in production or income?

Mr. HAGEN. The production of salmon from the Columbia River Basin over the past 10 years averages in value to the river commercial fishermen, the sport fishermen, and the offshore fishermen all along the Pacific coast, more than $17 million each year.

Mr. EVINS. What would this $1,400,000 request be used for primarily and principally?

Mr. HAGEN. It would be used to complete several hatcheries, the screening of irrigation diversions on principal spawning streams, and for constructing fish ladders. For example, there is a fish ladder to be constructed which will make accessible a large spawning area. The funds will be used for appraising the results of the projects as we

proceed so that appropriate changes can be made. The appraisal has shown excellent preliminary results of the program.

Mr. EVINS. Will this fund be used for building new hatcheries or completing those underway?

Mr. HAGEN. There will be no new construction of hatcheries with this money. However, there will be three projects for which we are requesting planning funds.

Mr. EVINS. Perhaps planning additional hatcheries?

Mr. HAGEN. Making initial surveys of sites for hatcheries, making ground surveys and engineering plans.

APPROPRIATIONS FOR FISH HATCHERIES, ETC.

Mr. JENSEN. I am at a loss to know how this item ever got in this bill. The Interior Subcommittee of Appropriations appropriates for fish and wildlife.

I thought we had been quite liberal in appropriating money for fish and hatcheries, for improvement of fish hatcheries.

How did this item get in this bill? We have money in the Interior appropriation bill for fish hatcheries?

Mr. HAGEN. That is correct, but this was placed in the Corps of Engineers' budget because it was the Corps of Engineers' projects that were expected to most seriously damage the fishery. It was not possible to charge the cost of preservation of these salmon against any one individual dam, as all of the dams contribute or will contribute to the difficulties in maintaining the fishery.

A number of years ago this matter was discussed before the committee, and we have previously inserted in the record a statement as to why this program is included in the Corps of Engineers' budget.

Mr. JENSEN. This is the first time you have put it in this bill?

Mr. HAGEN. No, sir; this has been in the Corps of Engineers' budget each year since 1949.

Mr. JENSEN. So you have two committees of Congress appropriating for fish and wildlife, so far as hatcheries and rehabilitation of hatcheries is concerned.

I wonder if that is the way it should be. I wonder if the right hand does not know what the left hand is doing. I must say, in all frankness, I did not know anybody else in the Government was spending money for this purpose.

I am not saying that it is not right. I am just saying that it is out of the ordinary, I think. I can see that you have to work with the Army engineers who are building dams. I can tell you right now that I am one Congressman that has been concerned about this salmon problem. I have always contended that building fish hatcheries has been possibly the best money that the taxpayers have spent from a return standpoint. You can have millions of fish for comparatively small amounts of money, and those fish grow and they feed in the ocean and they do not cost anybody anything.

They make an awful lot of food and they make a lot of business for a lot of people.

I forget how many hundreds of millions of dollars each year the sportsmen spend for guns, boats, fishing gear. It is just unbelievable, to say nothing about licenses.

The salmon industry is a great industry and the fish industry in this country is a great industry. It has been suffering now, there is no question about it, for a number of reasons.

They are importing fish now so cheap that it is about to drive many in the industry out of business.

EXTENT OF INJURY OF DAMS TO SALMON INDUSTRY

Mr. HAND. I have heard this salmon story a couple of times before. I seem to recall there was testimony before pertaining to the construction of all these dams and other barriers, that the salmon population had not decreased or if it had, it had decreased immaterially; is that correct?

Mr. HAGEN. That is correct.

Mr. HAND. Are we, therefore, overestimating the damage that these dams will do, or have we taken steps to prevent it?

Mr. HAGEN. We have taken steps on the Grand Coulee project and elsewhere to prevent decreases in the salmon populations. The States of Oregon and Washington also have been active in this direction.

Mr. HAND. When you take the pieces of the map down you are not really abandoning the upper river, are you?

Mr. HAGEN. So far as salmon are concerned, yes.

Mr. HAND. There are no salmon up there at all?

Mr. HAGEN. Above Grand Coulee Dam, and Swan Falls Dam on the Snake, salmon are now excluded. They have trout now, or other sport fish.

Mr. HAND. The salmon are all concentrated in the lower river?

Mr. HAGEN. They are found up to those dams. When and if Hells Canyon Dam is in place the run of fish now spawning above the dam site, some twenty-five to thirty-five thousand each year of adult salmon, may be lost unless we can institute a salvage project at the dam. Our big trouble is that we are running out of streams to which these runs can be transferred without injury to existing populations.

Mr. HAND. What do you mean by a salvage project at the dam?

Mr. HAGEN. We would require a facility to hold the salmon, take the spawn from them and plant that spawn into other tributaries so that when they return they will return to their new homes rather than return to the dam.

Mr. HAND. The balance of the money involved in this whole project is some $10 million, I think.

Mr. HAGEN. Roughly, that is right.

Mr. HAND. Does that money contemplate a construction based on the present situation in the Columbia or does it contemplate the necessity which will arise after the construction of more dams.

Mr. HAGEN. Principally after the construction of more dams. We are trying to prepare for the future.

Mr. HAND. You are in pretty good shape under present circumstances. If more dams are constructed you will have to do more work to preserve the salmon.

Mr. HAGEN. That is correct. We must, however, have our program in operation by the time the dams are constructed and are obstacles to the salmon.

Mr. JENSEN. There is a proposal to build some lower dams instead of Hells Canyon high dam. Can you handle the situation better with a low dam as far as the salmon are concerned?

Mr. HAGEN. There would be no advantage to the salmon if either one high or several low dams were constructed.

Mr. JENSEN. Are you gradually developing or designing more effective fish ladders?

Mr. HAGEN. Yes. That matter is under study now with the cooperation of the States, the Corps of Engineers, and the universities, with funds provided by the Corps of Engineers, in part, and with Fish and Wildlife Service funds. The States of Oregon and Washington are also utilizing their own funds.

FISH ELEVATORS

Mr. JENSEN. Your fish elevators never proved successful, did they?

Mr. HAGEN. Let us say we didn't have a way to get the fish into the elevators.

Mr. JENSEN. You could not herd them into the elevators?

Mr. HAGEN. That is a matter of study now with the corps and others, to guide fish into safe passageways at dams.

Colonel WHIPPLE. McNary Dam has a fish elevator which is installed. It uses the same entrances and the same attraction facilities as the fish ladder does. The dam at The Dalles will have a fish elevator as alternative means to the ladder.

Those have been designed and built. It was the old ones in the Bonneville Dam which were inadequately designed and would not attract the fish.

Mr. JENSEN. A few years ago you built an elevator which I have seen.

Mr. HAGEN. That was at Bonneville.

Mr. JENSEN. They explained the difficulty that they were having in guiding the fish into these elevators. I hope that as time goes along we will find the right answer to this salmon problem because certainly as a Member of Congress I do not want to hurt the salmon industry or any other industry as far as that is concerned.

Mr. EVINS. Mr. Hagen, you have given the committee a very fine educational statement on the habits of the salmon. I might add that I have heard that the experts tell us that 1 acre of water will produce 4 times as much food value as 1 acre of land.

FRIDAY, APRIL 22, 1955.

BONNEVILLE POWER ADMINISTRATION

WITNESSES

BONNEVILLE POWER ADMINISTRATION

DR. WILLIAM A. PEARL, ADMINISTRATOR
EUGENE C. STARR, CHIEF ENGINEER
N. H. CALLARD, DIRECTOR OF OPERATIONS AND MAINTENANCE
EARL D. OSTRANDER, DIRECTOR OF ADMINISTRATIVE MANAGEMENT
ROGER L. CONKLING, DIRECTOR OF BUDGET AND MANAGEMENT

CORPS OF ENGINEERS

BRIG. GEN. E. C. ITSCHNER, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS
COL. WILLIAM WHIPPLE, EXECUTIVE OFFICER, CIVIL WORKS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL, OFFICE, CHIEF OF ENGINEERS

DEPARTMENT OF THE INTERIOR

FRED G. AANDAHL, ASSISTANT SECRETARY FOR WATER AND POWER DEVELOPMENT
SIDNEY D. LARSON, DIRECTOR, DIVISION OF BUDGET AND FINANCE

BUREAU OF RECLAMATION

S. W. CROSTHWAIT, ASSISTANT COMMISSIONER FOR ADMINISTRATION

Mr. EVINS. The committee will consider the appropriation for the Bonneville Power Administration. I notice a request is made for $23,106,000 for the Bonneville Power Administration for fiscal year 1956, which represents a decrease of $7,408,000 in funds appropriated last year.

Dr. Pearl, the committee will be glad to receive and hear your general statement on the problems of the Bonneville Power Administration.

GENERAL STATEMENT

Dr. PEARL. Thank you. I would like to submit a formal statement for the record and then I would like to cover that just briefly by the use of a few charts.

Mr. EVINS. You may do so. Just give the reporter your official statement and proceed as you wish and discuss the matter from the charts as you desire.

(The following statement was submitted for the record by Dr. Pearl:)

DIGEST

For fiscal year 1956, Bonneville Power Administration requests appropriations of $16,456,000 for construction and $6,650,000 for operation and maintenance, a total of $23,106,000. These appropriations, supplemented by $10,013,000 of carryover funds available from previous years and $168,000 from reimbursements, will make possible a total program of $33,287,000.

The fiscal year 1956 construction program requirement of $26.6 million represents the investment funds required for the basic network and customer service

facilities needed to accommodate the additional generating capacity coming into service from Federal generating plants now under construction. The program is a sound financial investment for the Government. The system has been fully self-supporting, and, from inception to June 30, 1954, has earned net revenues of almost $102 million after meeting full costs of operation, maintenance, interest and depreciation.

$5.8 million, or 87.5 percent, of the operation and maintenance request is for activities directly related to physically operating and maintaining the grid system. Of the remaining 12.5 percent, $229,000 will be needed for power contract and rate work and $605.000 for general administration.

Mr. Chairman and members of the committee, it is my privilege to explain to you the budget request of the Bonneville Power Administration. This budget request, which represents our plans for operating, maintaining and managing the Federal electric grid system of the Pacific Northwest and for the construction of new transmission and general plant facilities, is vital to the region we serve. We are a major wholesaler of power for a large part of a four-State area, and satisfactory service from us is essential to our utility and industrial customers and to the Northwest Power Pool as a whole.

Our request for fiscal year 1956 compares with appropriations granted for fiscal year 1955 (adjusted to reflect a transfer to the Office of the Solicitor, Department of the Interior) as follows:

	1955 adjusted appropriation	1956 request	Increase or (decrease)
Construction	[1] $24,193,875	$16,456,000	($7,737,875)
Operation and maintenance	[2] 6,142,615	6,650,000	507,385
Total	30,336,490	23,106,000	(7,230,490)

[1] Excludes $120,125 transferred to Office of the Solicitor, Department of the Interior.
[2] Excludes $57,385 transferred to Office of the Solicitor, Department of the Interior.

Although our 1956 request is only $23,106,000, our total program for 1956 will be $33,287,000 because we will have available, to supplement the requested appropriation, $10,013,000 of carryover funds from previous fiscal years, $68,000 from the proceeds of sales of personal property (used vehicles, etc.), and $100,000 from other Federal agencies for reimbursable work. Of the total program of $33,287,000, the construction program is $26,637,000 and the operation and maintenance program is $6,650,000.

CONSTRUCTION REQUEST

Our construction program request for fiscal year 1956 represents the investment funds we need to do our job of marketing the power produced at Federal generating plants and of integrating these plants. The completion of Federal dams now under construction will almost double the Federal generating capacity now in service. We must add the basic network and customer service facilities to accommodate this additional generation. A very considerable portion of the necessary main grid facilities already are under construction—this means that a substantial part of the transmission investment funds related to the dams under construction has been appropriated. Customer service facilities are smaller in scope, need be in progress of construction for shorter periods, and represent a more or less continuing requirement.

The funds appropriated for the Northwest's Federal grid system represent, in my opinion, a sound financial investment for the United States. The system pays its way and returns to the Treasury, with interest, all funds advanced. As of June 30, 1954, our rates have been such as to earn for us net revenues from the inception of our operations of almost $102 million, after meeting full costs of operation, maintenance, interest and depreciation. Net revenues are, of course, for the entire Federal system, generating plants as well as transmission. The repayment of the investment is well ahead of schedule.

The construction funds totaling $26,637,000 which we have programed in fiscal year 1956 will be applied as follows:

	Amount	Percent of total
		Percent
Construction in progress (transmission facilities previously approved)	$19,856,000	74.5
New construction (new transmission facilities)	6,181,000	23.2
General plant (tools and equipment)	[1] 500,000	1.9
Reimbursable work for other Federal agencies	100,000	.4
Total	26,637,000	100.0

[1] Includes $68,000 which will be available from the proceeds of sales of personal property, used vehicles, etc.

I would like to mention briefly some of the more important new projects which we are proposing. In order of budget item number, these are:

Item 113: A second 150,000 kilovolt-ampere transformer bank at Snohomish substation, which supplies the Snohomish County Public Utility District and Puget Sound Power & Light Co.

Item 126: A 108 mile, 345 kilovolt transmission line from Big Eddy to Bethany, to transmit the Dalles power to the Portland area.

Item 134: A 69 mile, 230 kilovolt transmission line from Alvey to Reston, which will complete the previously approved facilities supplying the southern Oregon coastal area.

Item 137: Additions at the Roundup and La Grande substations, to provide an interconnection with Idaho Power Co. at La Grande.

Item 209: A second 115 kilovolt transmission line between Olympia and Aberdeen, 46 miles in length, to provide reliable service at Aberdeen.

Item 223: A 24,000 kilovolt-amperes substation, Pelican Horn, south of Moses Lake, for service to the Grant County Public Utility District.

Item 318: A second 10 mile, 115 kilovolt transmission line from Bethany to Forest Grove, to reinforce service to the city of Forest Grove, the city of McMinnville, Portland General Electric Co., Pacific Power & Light Co., Tillamook County Peoples' Utility District, and the West Oregon Electric Cooperative.

Our construction program proposes several specific changes in the plans for facilities previously approved by the Congress. These reflect changes in conditions, changes in the plans of our customers, and further engineering studies. The modifications in plan are outlined in our budget document and we will discuss them with you to the extent you desire during this hearing.

I would like to mention one point which I think is important to the sound management of our program. We have undertaken thorough engineering studies of each facility which we recommend for your approval in our budget. As part of these studies we have consulted with the utilities concerned. We have made a full disclosure of our plans. Our proposed facilities do not duplicate any existing or planned facilities of others and there is full agreement that the transmission and substation additions we propose are needed as scheduled. I believe I can say without qualification that the utility systems whom we serve or with whom we are interconnected wholeheartedly endorse our plans as sound utility and governmental management.

OPERATION AND MAINTENANCE REQUEST

Our operation and maintenance program request for fiscal year 1956 totals $6,650,000, an increase of approximately $500,000 over our appropriation for fiscal year 1955. In simplest terms this increase results from the fact that our transmission system must grow as additional generating capacity is placed in service. In other words, we must bring into service more miles of line, more substations, additional capacity at substations already in operation, and the related system control and general plant facilities. Statistics as to our growth are contained in our budget document and I need not repeat them here.

The bulk of our O. and M. request, $5,816,000 or 87.5 percent, is for activities directly related to the physical operation and maintenance of the system. We have a fine high-voltage electrical network, capable of rendering excellent service and representing a large investment on the part of the United States. To safeguard that investment and to provide reliable service, the system must be adequately operated and maintained. Since we are entirely a wholesale transmission system, our practices are not directly comparable with other utility systems which combine distribution and transmission. However, the O. and M. standards that apply to the components of our system are conservative as compared to

manufacturers' recommendations and accepted utility practices. I feel that our request for this work is reasonable and is the minimum which we need to do a reliable and safe job.

Of the remaining 12.5 percent of our O. and M. request, $229,000 will be used for power contract and rate work (including service planning, negotiation, and preparation of contracts, sales and interchange billing, and wholesale rate studies) and $605,000 for general administration. General administration includes personnel, administrative services, procurement, accounting, budget, and general management work. These are the business and management segments of our activities. Our expenses for them in fiscal year 1956 will be held to about the same levels as in fiscal year 1955. Our estimates, in these cases, also, I believe, are the minimum which we need to manage the system efficiently and to conduct the Government's business with respect to the disposition of Federal power in the Northwest.

We stand ready, to the best of our ability, to supply any other information you would like and to explain in detail our program request.

Thank you.

Dr. PEARL. Bonneville is asking for a total appropriation of $23,106,000. Of that, $16,456,000 is for construction and $6,650,000 is for operation and maintenance. When you add to those $10,013,000 carryover from the present year, and reimbursements of $168,000, you have a total of $33,287,000 for our program for the next year.

To cover this rather rapidly, we have prepared a chart to show you these items in our request and briefly tell you how we arrive at those items.

You notice [indicating] the carryover from fiscal year 1953 goes into the 1954 budget, and 1954 goes into the 1955 budget. Our carryover from 1955 to 1956 we estimate will be $10,013,000 which gives us this total money [indicating] $33,287,000. We do not contemplate any carryover this year; for that reason we feel we can say this is our program for this year, and this [$35,567,473] was our program last year.

Mr. EVINS. What do you mean when you say you do not expect any carryover?

Dr. PEARL. I mean next year.

Mr. EVINS. You mean after 1956?

Dr. PERAL. I beg your pardon. I am talking, of course, about the 1956 budget.

Mr. EVINS. You anticipate $10,013,000 for 1956, but none for 1957?

CONSTRUCTION PROGRAM

Dr. PEARL. That is correct. Now to go just a little further into the details of our construction program: Our construction program consists of work in progress, new starts, general plant, and reimbursable. The work in progress is $19,856,000; the new starts are $6,181,000; for plant facilities we are asking for $500,000, of which $68,000 will be from the sale of personal property, vehicles, and so forth. Then we are estimating reimbursements of $100,000. This makes a total of $26,637,000.

The function of the Bonneville organization is to carry to market, in other words, to the load centers, power developed by Federal generation that has been assigned to us for marketing. This, of course, is from dams built by the Army engineers and by the Bureau of Reclamation.

As of January 1 this year, we have 3,749,000 kilowatts of generation. During the next 5 years—and that is work now under construc-

tion—there are 2,652,000 additional kilowatts. This power will come on the line at the rate of about an average of one-half a million kilowatts a year according to the present schedule given to us by Reclamation and the Army engineers. That means that our construction budget is going to be more or less constant for the next 4 or 5 years.

In covering briefly this grid that we operate and discussing briefly the work in progress and new starts, we have placed a map at the other end of the room. That is the Bonneville network. All the lines in black on that map represent the present installation that is now carrying this 3,749,000 kilowatts to load centers. The green is work in progress and the red is new starts. The work in progress, as I have just indicated, is a little over $19 million, and the new starts are a little over $6 million. To meet this generation, of course, is our problem; so our budget is based entirely upon generation as it comes in.

It is necessary, in order for us to carry this new generation to market, to strengthen the grid; that is, to see if it requires larger lines, higher voltages, to add to the system. It requires us to take care of delivery points of which the number we will have, I think, is 333 in fiscal year 1956. Bonneville will have, by way of this grid, 172 substations and 7,765,000 kilovolt-amperes of transformer capacity; 6,288 miles of transmission lines; 333 points of delivery, and an investment of $344,565,000.

That gives you the picture of the plant that we will maintain and operate during the next year.

Now to go to our next chart and tell you a little more of our program. I remember yesterday the question coming up about different areas. You will notice on this chart [indicating chart "Power flow, January 1959"] that our source of power is pretty well concentrated in two points—here and here [indicating the Grand Coulee-Chief Joseph area and the McNary-Dalles area]. Of course there is a project over here [indicating the Hungry Horse project] in Montana. In order for us to make up our budget and plan the transmission system, we must know something about loads and where the loads are going to be and where the growth is going to be, in order to plan this system, and we make those studies and make them in advance so we can, in turn, give them to our Engineering Department so they can in turn see the way the system is enlarging and arrange for a program of expansion of our grid.

You can see very readily that a large market for power in the Northwest exists in the area that you might call the Puget Sound area. Another is the Portland area. That area, of course, is from Chehalis south to Portland. Other substantial loads are centered in the Eugene and southern coastal areas of Oregon. Eastern Oregon is rather sparsely settled. The Hungry Horse power, in part, has been allocated to Montana; so it is not necessary to have too heavy a grid into Montana.

This now is the way we visualize it from our study of the load growth, showing where the power will go when the present plants under construction are nearly completed. That means for January 1959.

Of course you can only sell where there is a market and in our study, which is carried on in cooperation with our customers, with public

utilities, private utilities, and other means, we try to arrive at an estimate of the load growth in the various areas.

OPERATIONS AND MAINTENANCE

Now to go on for just a minute to our O. & M. I told you briefly what our grid consists of. This chart [indicating chart "Operating statistics"] shows the grid and how it has grown to meet those requirements. By "requirements," I mean new generation. You will notice under "Substations" how we have given you 4 years, of which the fourth one is our plan for 1956. Our substations have increased from 132 to 172; transformer capacity has increased from 4,517,000 to 7,765,000 kilovolts; transmission (miles of line) has increased from 4,658 to 6,288; electrical plant in service has increased from a value of $220,547,000 to $344,565,000; our points of delivery have increased from 295 to 333; energy sales from 16,393 million to 26,623 million kilowatt-hours; our revenues during this period of time have increased from $38,949,448 to an estimated $61,473,000; generating plants in operation will have increased from 3 to 11 by 1956. And as the whole construction program on the part of Reclamation and the Army Engineers progresses, there will be 11 projects in operation with a generating capacity in service increased from 3,014,000 to 4,626,000 kilowatts, we estimate, for 1956.

Now to operate and maintain this system we require a certain budget. We were concerned about our budget. We have worked out standards of maintenance and operation; we have submitted those to various people, private utilities, and public utilities, to our customers, for their criticism and, as far as our budget is concerned, I feel sure I can say to you that it meets with the approval of everyone in the Northwest. I do not mean to say they are all happy because, you know, our industries are operating on part interruptible power, some as high as 40 percent, and we do not have the power to firm that up; also, some would like to have their facilities stepped up. But, over all, I think I can tell you that our budget meets with approval.

The statement I would like to add is this: Each year this physical plant is going to increase for the next 5 years. That means more miles of line to operate and maintain; that means that our O. and M. budget will go up—not in direct proportion to the increased plant, but it will increase.

We are asking for a slight increase in our O. and M. this year. Of this O. and M. budget that we are asking this year, which is $6,650,000, we expect to spend $5,800,000 of that on the actual operation and maintenance of this system. We expect to spend 12.5 percent on power contracts and rates, personnel, administrative services, procurement, accounting, budget, and other similar items. The increase we are asking for this year is in the 87.5 percent for actual operation and maintenance of this plant, because physically it is larger. Our other items we will hold approximately constant with the present year's operations.

In going over this, I realize I cannot hope to answer all your questions. I do not want to take any more time than necessary, because we are anxious to answer any questions you might have; but I would like, if it meets with the approval of your committee, just to spend a minute on the power resources of the Northwest.

Mr. EVINS. You may proceed.

Dr. PEARL. It is a subject that is rather interesting and confusing.

This chart [indicating chart "Electric power requirements by class of consumer"] shows you the power consumption in the Northwest, in other words, the Western group of the Northwest power pool, representing the total facilities in the Northwest, not Federal alone; this is the total load [indicating] and this chart shows loads that are actual [indicating years preceding 1955] and, from this point on, it shows the estimated. The actual, of course, is something that is not hard to get and we have given you that.

Yesterday you heard the Army engineers or Reclamation—I am not sure which—say that in the last 6 years the demand for power had almost doubled. Our figures are based upon what we call a relatively conservative basis and I am going to show you a chart to show just what they are.

You will notice [indicating chart "Growth in electric power requirements, Western group of Northwest power pool and the United States"] this really shows you what we arrived at in our estimate. You might be interested to notice that large industries in the Northwest have expanded that amount [indicating]; small industries or commercial units this amount [indicating], domestic users and rural users this amount [indicating], and miscellaneous and losses and, of course, Federal uses, this amount [indicating].

The thing I want to point out to you is that in estimating for future growth we have not made much allowance for large industries in the Northwest. I am saying this so you will be aware of it, because we have been criticized for this. In other words, you notice that there was very little expansion of the electroprocess industries supplied by BPA in the period 1945–54, in sharp contrast to the very large expansion which occurred in the preceding period, 1940–45 [indicating]. Now there is a little more growth in here [indicating the period 1954–60] because Anaconda Aluminum will come on the line; Hanna Nickel Co. will come on the line in full. They are both mass users of electricity. But, beyond that, our forecasts for 1954–60 include relatively little allocation for large industries.

Now I would like to tell you how we arrive at our estimates of load growth. You will notice this period of time from 1934 to 1940 [indicating]. The growth in the Western group was 64.6 percent. That was for a period of 6 years. In the United States, the growth was just a little less than in the Western group, 62.5 percent. Then from 1940 to 1945, the load in the Northwest grew terrifically. That was because of the electrometallurgical process industries that came into the area; so we elected to show separately the growth rate with and without these industries. This is the normal growth [indicating a growth of 79.2 percent in the Northwest exclusive of electro process loads] and this is the effect of the electrometallurgical process indus-

tries [indicating a growth of 152.1 percent in the Northwest with electro process loads included]. That is all the aluminum industry, basically. You will notice how these growth rates compare with the growth in the United States [indicating a growth for the United States of 56.9 percent].

Now when we come to the period of 1945–54—I hope you will all notice these periods do not cover the same number of years; the 1945–54 period covers more years than the 1940–45 period—by way of comparison our growth shows 133.9 percent not including electro-metallurgical loads and 137.9 percent including these loads. The growth in the United States was 117.4 percent. There, again, we grew faster than the United States as a whole.

When we start at this point [indicating] the future period from 1954 to 1960 and go on, what will we use for a figure? We went to our public agency customers, we went to private utilities, and asked them what amount of growth they expected and it is from them that we arrived at the figures used. However, we put ourselves on the conservative side [indicating a forecasted load growth for the west group of the power pool from 1954–60 at 59.4 percent.] Here [indicating] is what the Electrical World estimates will happen in the United States in the next 6 years. United States growth will be 62.4 percent. We have been a little conservative and predicted for the Northwest less than 62.4 percent. Therefore, our calculations [indicating again the Northwest growth at 59.4 percent] show growth at what we think is an absolutely minimum rate.

The next chart (referring to the chart Estimated Distribution of Federal Prime Power—Energy, Critical Year) shows you the situation with respect to the hydrogeneration of the Government. You have two things to consider—critical years for water and normal or average years. These reflect differences in the run of the river. No one year can be considered alone, because the run varies considerably.

Now, then, under a critical year—and let us be sure of this one point; I have now left the total western group of the pool in the Northwest and am now talking about Federal generation only, about Bonneville Power Administration. No power will be available for interruptible industrial loads under critical water conditions during any year from the present to 1964–65, the end year shown on the chart. You will notice that in 1955–56 in a critical year, private utility requirements cannot be met in full. Red [indicating colored blocks on the chart] represent the private utility requirements that we cannot meet.

In 1957–58, again, a part of the private utility requirements we cannot meet. That same condition applies in later years and it gets more pronounced as we go on. Our present generation is all in service at this point [indicating the year 1959–60] and from 1959–60 on [indicating] we have no figures upon which to base an assumption as to the amount of new generation, because we do not know what generation will become available after 1960. So, for that reason, you will see this area [indicating the unserved requirements of the private utilities, which increase from 272,000 kilowatts in 1959–60 to 1,629,000 kilowatts in 1964–65] increases very materially. That, I think, answers the question that somebody raised yesterday about "can we give private utilities firm power?" We give private utilities firm power up to a stipulated amount. We calculated that last year and

these [indicating amounts increasing from about 400,000 kilowatts in 1955–56 to about 900,000 kilowatts in 1958–59, and thereafter decreasing to less than 175,000 kilowatts in 1964–65] are what we figure we can give them safely.

This chart [indicating the chart Estimated Distribution of Federal Power—Energy, median year] shows median year conditions, which are quite different. The white and red crosshatched areas represent the interruptible industrial load requirements that we cannot meet. I am not sure what we should say about our responsibility for interruptible loads. Our industrial group operate partly on firm power and partly on interruptible. This interruptible power they operate on we can curtail at any time we find it necessary. I do not want to leave you with the impression they are satisfied; they are visiting us at frequent intervals and are very anxious to firm up more power; but we do not have it to give them; therefore, we find it necessary to keep them on part interruptible. I mentioned a minute ago that interruptible is as high as 40 percent in some cases. In the years 1955–56 through 1957–58 there is a small amount of interruptible load that we cannot meet even with median water conditions. In the year 1959–60, we can meet it under the present schedules as given to us by the Army engineers and Reclamation. In 1960–61 we will be unable to meet the interruptible load in full. As you go beyond there, we must drop the interruptible load entirely and fall short of being able to take care of private utilities.

One statement I would like to make is that the private utilities come ahead of interruptible industrial loads. So that when we are short as we were recently, the thing we must do is to curtail our interruptible service to industries. It might be interesting to mention that during this March and April we found it necessary to curtail our industries. We first curtailed a third; then we curtailed 50 percent; then we curtailed 75 percent of their interruptible power. That interruptible power is practically all restored now. It was due to two reasons: We were short of power because the river flow was down, and it was lower than the critical flow I showed you on the last chart that was presented. We had the lowest flow in March that we have any record of in the Columbia River. The other reason it was down is because our load was 200,000 kilowatts more than we estimated. We had a cold spell that nobody could foresee, and that increased our load more than we had planned on. Curtailment procedures will remain in effect until May 1 and longer, unless the flow of the river picks up in the meantime. I do not mean we will curtail all of their interruptible power; we will give them all we can.

Now I have gone over our generating problems and our general operation and our budget, and I think we should let you ask questions from here on.

ATTITUDE OF NORTHWEST POWER POOL COMPANIES

Mr. EVINS. Dr. Pearl, is the Northwest power pool, which is comprised of Bonneville, public utility districts, and private utilities, all in agreement regarding your 1956 program?

Dr. PEARL. I think I can say "Yes" to that question.

Mr. EVINS. Well, you have had a remarkable degree of success in cooperation with all segments of the power industry in your area.

Dr. PEARL. We brought them in and worked with them before we completed our budget.

Mr. EVINS. And they are all in agreement?

Dr. PEARL. I do not want to infer there might not be any one of them that is not; but I will say, on the whole, they are in agreement.

TOTAL APPROPRIATION REQUEST

Mr. EVINS. Will you let us take a look at your first chart again?

Dr. PEARL. We are requesting $23,106,000. With the carryover and reimbursables and O. and M. we will have an operation—a program, in other words—of $33,287,000.

Mr. EVINS. Your construction costs for last year were $24,314,000; your construction cost for next year is to be only $16 million?

Dr. PEARL. No. The $10 million goes in with that. It is $26 million next year.

Mr. EVINS. What is the total construction for next year?

Dr. PEARL. Our total construction for next year will be $26,637,000.

Mr. EVINS. And what is the firm figure for operation and maintenance?

Dr. PEARL. $6,650,000.

SOURCES OF POWER

Mr. EVINS. Now let us turn to the next chart for a moment—the flow chart. All of the power you receive from Grand Coulee, is 2,300,000 kilowatts?

Dr. PEARL. That is right.

Mr. EVINS. Chief Joseph is 1,200,000?

Dr. PEARL. This is 1,220,000 and this is 2,300,000 [indicating Chief Joseph and Grand Coulee, respectively]. This [indicating McNary and the Dalles] is not available yet; The Dalles is not available until 1957. Chief Joseph is not generating as yet.

Mr. EVINS. How much will you get from McNary and The Dalles?

Dr. PEARL. We will get from McNary 1,022,000 and from The Dalles 538,000. Some of McNary generation is already in operation. The Dalles is not in operation at all.

Mr. EVINS. How much will you receive from Hungry Horse?

Dr. PEARL. 300,000.

Mr. EVINS. Tell us for the record how much firm power you are getting at the present time.

Dr. PEARL. To answer that question by way of installation that is in operation today, there are 3,749,000 kilowatts of generation installed today. We cannot, of course, get all of that power out.

Mr. EVINS. 3,700,000?

Dr. PEARL. That is taking the capacity of every generator, if we were running at full load.

Mr. EVINS. When the present construction is completed, how much firm power will you have?

Dr. PEARL. 7,119,000 kilowatts of generating capacity when all of the generation now under construction is in.

Mr. EVINS. Do your generation schedules coincide with the schedules of the corps and the power schedules in the area?

Dr. PEARL. We work with the corps and Reclamation and, of course, these figures are obtained from the corps and Reclamation.

STATUS OF THE WEST KOOTEMAI POWER CO. PROPOSAL

Mr. EVINS. What is the status of the proposal of the West Kootenai Power Co. to interconnect with the Northwest power pool? This is a Canadian company. What is the status of that situation today?

Dr. PEARL. I would have to say it is dormant as of today.

Mr. EVINS. You mean there is no difficulty?

Dr. PEARL. If you are asking me the question about the Canadian storage, then I would have to say to you there have been three proposals made to Bonneville to use Canadian storage which, when water flowed through our generation in the United States, was available for someone to use. Those three proposals are under study right now. I would like to tell you very briefly how we are doing today. The Army engineers provide some of the generation; Reclamation provides some of the generation. Bonneville transmits the power. We have set up a committee out in the area on which there is representation of the Army engineers, Reclamation, Bonneville, Geological Survey, and the Federal Power Commission and they are working on the engineering statistics which will, in turn, be referred to Washington, D. C., to a similar group here for their consideration.

Mr. EVINS. What were the results of your studies in connection with the regular field review of your operations which was completed last year?

Dr. PEARL. We found we could, without any doubt, operate in the black for the next 2 years. As the result of that, such an announcement was made. As time goes on and we continue those studies from year to year, as we will without doubt, our rates must increase at some time, by amounts which we have not determined as yet.

COST ALLOCATIONS

Mr. EVINS. What is the status as to the final cost allocation of the projects of the Corps of Engineers in this area?

Mr. OSTRANDER. I can give you the status, I think, rather briefly. In connection with Bonneville Dam, we have a definitive allocation made by the Federal Power Commission in 1945. Do you want the results of the allocation?

Mr. EVINS. Just the status of the final cost allocations as it affects the Corps of Engineers projects.

Mr. OSTRANDER. At Bonneville Dam, we have a definitive allocation as I stated. At the Albeni Falls project and the Detroit-Big Cliff project, Lookout Point and Dexter projects, the Chief Joseph project, and The Dalles project, we have only tentative allocations assigned to us by the Corps of Engineers.

On McNary, we have an interim allocation prepared by the Federal Power Commission by order issued in 1953. That is all of the corps projects.

I might explain that under the Bonneville Project Act and other applicable statutes, the Federal Power Commission has jurisdiction and responsibility for making allocation of the Bonneville Dam and McNary Dam. But on the other Corps of Engineer projects, no agency has been assigned the specific responsibility by statute; but, by Budget Bureau action and general agreement, the Corps of Engineers has responsibility for making tentative initial allocations, working with other interested agencies.

Mr. EVINS. The Federal Power Commission has legislative authority to make allocations for McNary and Bonneville?

Mr. OSTRANDER. Yes, sir.

Mr. EVINS. And the Corps of Engineers makes it for everything else?

Mr. OSTRANDER. In our area.

Mr. EVINS. And the practice is that the Bureau of the Budget approves those allocations?

Mr. OSTRANDER. I do not know whether they have been submitted to the Bureau of the Budget, offhand.

Mr. EVINS. After you have made your allocations, what authority approves or looks them over?

Colonel WHIPPLE. There is no statutory practice for that.

Mr. EVINS. I am talking about the customary practice.

Colonel WHIPPLE. They are coordinated at the Washington level between the Corps of Engineers, the Federal Power Commission, and the Secretary of Interior's Office. This is in accordance with an agreement made in March of last year.

Mr. EVINS. In effect, the Federal Power Commission is looking them over, but they just do not have statutory authority to determine the allocations?

Colonel WHIPPLE. Yes. In practice, the authority lies, I would say, in the Corps of Engineers to do this after consultation with the other agencies. We are still working on that and have not yet approved those allocations finally.

PERSONAL SERVICES LIMITATION

Mr. EVINS. Last year, Dr. Pearl, the committee imposed a personal services limitation upon the Bonneville Power Administration. What has been the effect of this limitation on your activities?

Dr. PEARL. There was a survey team that visited Bonneville and made recommendations of certain curtailments in staff. The Congress put in a personnel limitation in dollars. We have complied with that and have lived within our budget. We have curtailed to what we think now is a stable organization.

MORE WORK DONE BY PRIVATE INDUSTRY

The limitation said to us "We want you to do more contracting and less construction with your own men," which we have done, and the shift from the one to the other cost us very little loss of time; but, generally speaking, we are operating under the new authorization and are doing more contracting.

Mr. EVINS. It has been necessary for the Bonneville Power Administration to contract with outside engineer personnel to do the job which normally you had been able to do in the past?

Dr. PEARL. Yes; that statement is true. We are doing some contracting with outside firms. We have given the program to you and our engineering department made a detailed study of the man-hours of labor involved in carrying on this program and it was more than we had personnel available to do; so we have subcontracted some of the design work.

Mr. EVINS. You have limited your personnel under that limitation, but you do not consider this outside contracting is in violation of that limitation?

Dr. PEARL. No, we do not.

Mr. EVINS. You consider it is absolutely necessary because of the limitation; is that correct?

Dr. PEARL. That is correct.

Mr. EVINS. Do you believe in the force account type of construction or outside contracting?

Dr. PEARL. Generally speaking, I would like to think in terms of a stable organization and that you picked up your peaks with contracts, rather than expanding and then laying off people. I would like to get away from ballooning and curtailing. I think this will accomplish that.

SUMMARY JUSTIFICATION DATA

Mr. EVINS. We will insert in the record pages BP–2 through BP–10 of the Bonneville Power Administration justifications.

(The matter above referred to is as follows:)

GENERAL STATEMENT

FISCAL YEAR 1956 ESTIMATES

The appropriation requirements of the Bonneville Power Administration for fiscal year 1956 total $23,106,000. These requirements are compared with appropriations granted in fiscal year 1955 in the following table:

Appropriation	1955 act	1956 estimates
Construction	[1] $24,314,000	$16,456,000
Operation and maintenance	[1] 6,200,000	6,650,000
Total	[1] 30,514,000	23,106,000

[1] $120,125 of the construction appropriation and $57,385 of the operation and maintenance appropriation, a total of $177,510, was transferred to the Office of the Solicitor, Department of the Interior, pursuant to the transfer to the Solicitor of legal work of the Administration.

The construction programs for both fiscal years will be larger than the construction appropriations indicated above, the 1955 program totaling $29,247,348 and the 1956 program totaling $26,637,000. Construction programs larger than current appropriations are made possible because of the availability of carryover funds from prior fiscal years. This carryover resulted from: (1) Major changes in project designs and service plans resulting from later investigations, which, because of the time required to determine revisions, resulted in delays in construction schedules; (2) reductions in costs below estimates; and (3) delays in schedules of construction work to be done, due to postponement of energization dates or other timing revisions not associated with major design or plan changes. Total programs are summarized below, with adjustment for the transfer of funds in fiscal year 1955 to make the data comparable.

	1955 estimate	1956 estimate
Construction program:		
New appropriations	[1] $24,193,875	$16,456,000
Utilization of carryover from prior fiscal years	4,844,473	10,013,000
Reimbursements	209,000	168,000
Total, construction program	29,247,348	26,637,000
Operation and maintenance program	[2] 6,142,615	6,650,000
Total, operation and maintenance and construction programs	35,389,963	33,287,000

[1] Excludes $120,125 transferred to Office of Solicitor, Department of Interior.
Excludes $57,385 transferred to Office of Solicitor, Department of Interior.

RESPONSIBILITIES AND ACTIVITIES OF BONNEVILLE POWER ADMINISTRATION

The Administration is responsible for the disposition of electric power produced by 12 Federal generating plants in service or under construction in the Pacific Northwest. To carry out this responsibility, it constructs and operates high-voltage electric power facilities which integrate the Federal power projects, transmit the output of Federal powerplants to load centers, and interconnect the Federal system with non-Federal utility systems throughout the region. In addition, the Administration develops basic data relative to the long-term power demands of the region to provide a firm base for transmission planning and as a guide to the additional generation which will be needed; conducts joint engineering studies with other regional power systems to determine the most efficient transmission network for service to the region; and actively participates with other Government agencies and non-Federal groups in planning for the continuing development of the region's potential hydroelectric resources to meet power needs.

FISCAL YEAR 1956 CONSTRUCTION REQUIREMENTS

Additional scheduled Federal generating capacity.—The administration's fiscal year 1956 construction program provides for the completion of facilities which are now in the progress of construction and for the initiation of construction of the additional transmission capacity required to carry to load centers the power production of the new Federal generating installations which are scheduled to be in operation by January 1959. Such additional capacity must be in service, of course, at the time the new generators are ready for operation. It is necessary to initiate work in fiscal year 1956 on all new major transmission circuits and substations scheduled for energization by January 1959 since about 3½ years normally are required for construction of major system additions.

As of January 1, 1955, machine-generating capacity installed on the United States Columbia River power system totaled 3,749,000 kilowatts (consisting of completed installations at Bonneville, Grand Coulee, Hungry Horse, Detroit, and Big Cliff, 5 units at McNary and 1 unit at Lookout Point).

As shown in detail on the table below, in the period January 1, 1955, to January 1, 1959, 2,652,000 kilowatts of generating capacity will be added resulting in a total of 6,401,000 kilowatts of capacity scheduled to be in service by the last winter of the fiscal year 1956 construction budget period. The administration's current and proposed fiscal year 1956 construction programs cover the new transmission and substation facilities needed to market the power from these large additions to system generating capacity.

Annual incremental peak capacity installations

[In kilowatts]

	Fiscal year 1956 construction budget period					Later budget periods—Jan. 1 of each year	
	Jan. 1 of each year				Total Jan. 1, 1955, to Jan. 1, 1959		
	1956	1957	1958	1959		1960	1961
McNary	402,000	322,000			724,000		
Lookout Point	92,000				92,000		
Dexter	17,000				17,000		
Albeni Falls	49,000				49,000		
Chandler	12,000				12,000		
Chief Joseph	305,000	305,000	305,000	305,000	1,220,000		
The Dalles			179,000	359,000	538,000	359,000	359,000
Total	877,000	627,000	484,000	664,000	2,652,000	359,000	359,000

Joint studies.—All electrical facilities proposed for construction in this budget have resulted from joint load, resource and engineering studies made by the administration in cooperation with the customer-utilities affected. Major system additions have been the subject of intensive analyzer board studies in which all of the larger utilities of the region have participated. In addition, all customers of the administration have had an opportunity to review in detail each of the transmission facilities proposed for inclusion in the budget. These thorough joint studies and reviews, it is believed, insure that the facilities recommended are needed on the schedules proposed and do not duplicate any existing facilities, that they represent the best solution to the service problems at hand, and that they will constitute a wise investment for the Government.

Transmission and substation facilities under construction.—Requirements for fiscal year 1956 for construction in progress will total $19,956,000. Of this amount $19,248,000 is needed for major grid and local electrical facilities and $708,000 for general system additions.

The electrical facilities component includes the completion during fiscal year 1956 of 380 miles of 230-kilovolt or higher capacity transmission lines, 80 miles of 115-kilovolt transmission lines and 7 new substations having a total capacity of 100,000 kilovolt-amperes. Facilities under construction scheduled for completion after fiscal year 1956 include 245 miles of 230-kilovolt or higher capacity lines, 140 miles of 115-kilovolt lines and 5 new substations having a total capacity of 320,000 kilovolt-amperes. Major work underway in 40 existing substations will add 2,400,000 kilovolt-amperes of 230/345-kilovolt transformer capacity and 2,300,000 kilovolt-amperes of lower voltage transformer capacity, 135,000 kilovolt-amperes of reactive capacity, and miscellaneous other system improvements such as circuit breaker additions and replacements and the addition of neutral boosters. The 230/345-kilovolt transformer capacity is associated with the conversion to 345 kilovolt operation of the McNary-Ross and Chief Joseph-Covington circuits.

The general system additions component includes 3 buildings for storage and maintenance use, and installations of microwave, radio, telemetering, and supervisory control equipment.

The major electrical facilities which will be in progress of construction will transmit Chief Joseph power to the Puget Sound area (item 108), interconnect The Dalles powerhouse with the main grid (item 116), and reinforce existing facilities in The Dalles area (item 116) and the Coos Bay area (item 132).

New projects.—New projects proposed in fiscal year 1956 will require $6,181,000, of which $5,889,000 is for electrical facilities and $292,000 for general system additions. The electrical facilities component includes the initiation in fiscal year 1956 and completion in later years of 180 miles of 230-kilovolt or higher capacity transmission lines and 55 miles of 115-kilovolt transmission lines. Major work to be initiated in 20 existing substations will add 400,000 kilovolt-amperes of transformer capacity, 30,000 kilovolt-amperes of reactive capacity, and miscellaneous other system improvements, includng circuit breaker additions and replacements for completion in fiscal year 1956 and later years.

The general system additions component includes four maintenance, laboratory, and shop buildings; and supervisory control, telephone terminal, radio and telemetering equipment.

The more important of the scheduled new projects include a major increase in transformer capacity at the Snohomish substation (item 113), a 345-kilovolt line from Big Eddy to Bethany to transmit The Dalles power to the Portland area (item 126), a 230-kilovolt line between Alvey and Reston (item 134) which will complete the main network additions supplying the Coos Bay area now underway as part of item 132, a second 115-kilovolt line from Olympia to Aberdeen to provide reliable service at the Aberdeen substation (item 209), a new substation at Pelican Horn, in the vicinity of Moses Lake (item 223), and a second 115-kilovolt line between Bethany and Forest Grove (item 318).

Tools and equipment.—Requirements for vehicles, and construction, shop, laboratory, and communication test equipment, including replacement of obsolete and costly-to-maintain items, will total $500,000 in fiscal year 1956.

FISCAL YEAR 1956 OPERATION AND MAINTENANCE REQUIREMENTS

Fiscal year 1956 requirements for operation and maintenance, by major activities, are shown below with comparative fiscal year 1955 data.

Activity [1]	Fiscal year 1955	Fiscal year 1956	Increase or (decrease)	
			Amount	Percent
System operation and maintenance	$5,296,115	$5,816,000	$519,885	9.8
Power contracts and rates	252,500	229,000	(23,500)	(9.3)
General administration	594,000	605,000	11,000	1.9
Total	[2] 6,142,615	6,650,000	507,385	8.3

[1] The activity categories are different from those used in previous years. Pursuant to recommendations made by members of the House and Senate Subcommittees on Interior Appropriations, that the nomenclature of activities be changed to more clearly reflect the actual types of work performed, the revised activity schedule shown on this table was prepared by the Department of the Interior and approved by the Bureau of the Budget for use by power-marketing agencies.

[2] $57,385 transferred to the Office of the Solicitor is not included to make the fiscal year 1955 and fiscal year 1956 data comparable.

As is shown by the above table, increases requested in fiscal year 1956 are mainly for the direct operation and maintenance of the Administration's transmission grid. The continuing expansion of the system, coupled with the urgent need of achieving a planned program of adequate maintenance and operation, make these increases necessary. The estimates for fiscal year 1956 represent a level of maintenance which is comparable to or below standard maintenance practices of the electric utility industry. The level of physical operations is the minimum for safety of personnel and reliability of service. Analyses of power resources and loads required for system operation (determining operating plans for the Federal projects, coordination with the northwest power pool, etc.) will be performed in fiscal year 1956 at the same level as in 1955.

The following statistics show the continuing growth of the system:

Facilities in operation	July 1954	July 1955 [1]	July 1956 [1]
Miles of transmission line (circuit miles)	6,377	6,669	7,185
Number of substations	158	172	175
Transformer capacity (kilovolt-amperes)	6,153,417	7,350,000	9,375,000

[1] Estimated.

Fiscal year 1956 estimates for power contract and billing work are less than for 1955. Essentially the same permanent staff is maintained in both years, but the fiscal year 1955 estimates are higher because they provide for a comprehensive nonrecurring study of the Administration's rate structures to be made by an outside consulting firm.

The fiscal year 1956 estimates for general administrative activities, which include personnel, administrative services, procurement, accounting and budget work, are slightly higher than the previous year. Staffing for these activities in fiscal year 1956 is held at about the same level as the previous year, but the operation and maintenance appropriation requirement is increased since the staff will devote a higher proportion of its time to operation and maintenance and less to construction.

POWER SITUATION

Last year.—Streamflows on the Columbia River during the past 1953–54 operating year were relatively good. In the early part of the storage drawdown season Columbia River flows were not sufficiently high for the Administration to carry all of the BPA interruptible industrial load, and a small amount of other resources available from the non-Federal utilities was utilized by BPA's industrial customers to meet their interruptible requirements. By December, however, streamflows on the Columbia had improved and from that time on the Administration supplied all firm obligations and the total interruptible portion of its load. Use of outside sources of generation by interruptible customers was discontinued.

Current year.—Streamflow conditions this year are considerably above median in the Columbia Basin and adjacent areas. All firm and interruptible industrial loads of the Administration, including the full requirements of the privately owned utilities, have been supplied to date. Based on current forecasts, it appears that the Administration will be able to continue to serve all of its firm and interruptible loads during the remainder of the water year 1954–55.

This points to the strong possibility that the current operating year, fiscal year 1955, will show very favorable gross operating revenues. Good water conditions mean that the Administration has for sale secondary power which otherwise would not be available, the sale of which substantially increases revenues. Good water conditions also mean that neither BPA's privately owned utility customers nor the interruptible industrial customers will have to resort to the use of high-cost steam-generated power. BPA's monthly energy sales exceeded $4 million in August 1954 for the first time.

Future years.—The power situation will continue to improve as generating units are installed at Federal plants now under construction. By 1958–59, even under minimum year hydroelectric conditions, the Administration will be able to supply on a firm basis all the requirements of the privately owned utilities, in addition to the requirements of public agencies and the firm industrial loads. Under median hydroelectric conditions, the full requirements of the interruptible industrial customers also can be served. However, unless new generation is constructed in the region by Federal or non-Federal sources to match load growth, the power situation will become critical after 1960.

FINANCIAL POSITION

The accounts of the commercial power operations of the Columbia River Power System, which includes the Bonneville Power Administration's transmission network and the hydroelectric generating projects of the Bureau of Reclamation and the Corps of Engineers for which Bonneville Power Administration is the marketing agent, are subject to an annual commercial-type audit by the General Accounting Office. Financial results summarized below are as certified by the Comptroller General of the United States pursuant to audit by the General Accounting Office.

Favorable streamflows in the Columbia River Basin during fiscal year 1954, coupled with the fact that nine additional generating units were placed in service at Big Cliff, Detroit, Hungry Horse, and McNary Dams, resulted in total gross operating revenues of $45,317,693.[1] This was an increase of $6,142,484, or 15.7 percent over the $39,175,209 grossed in fiscal year 1953 when low water conditions caused a decrease in output at the generating plants.

While gross revenues undoubtedly will increase in subsequent years due to the progressive installation of additional generating units, is is expected that net revenues will not reflect a proportionate increase due to two major factors. The first is the postponement of any increase in the Administration's wholesale power rates until December 1956 or later. The second is the higher construction costs of new dams and powerplants being placed in service. A factor affecting net revenues in any year is this: Major transmission facilities to take power away from a new hydroelectric project must be available when the first generator unit at such a project goes into service, but the full capacity of the transmission investment may not be utilized until additional units are placed in service, with the result that during the developmental period for a new generating plant transmission costs may be disproportionate to actual production.

Of the $45,317,693 revenues of the Columbia River power system in fiscal year 1954, $12,793,651, or 28.23 percent was applied to operation and maintenance costs; $12,248,197, or 27.03 percent, was applied to interest costs; and $11,638,135, or 25.68 percent, was applied to depreciation costs, leaving a net revenue for 1954 of $8,637,710, or 19.06 percent.

Total operating revenues of the commercial power operations of the Columbia River power system from inception to June 30, 1954, were $349,746,787. After application of these revenues to operation and maintenance costs, depreciation costs, interest costs and miscellaneous income adjustments, there remained net revenues of $101,774,950. New operating projects included in the 1954 revenue and expense statements were Albeni Falls, McNary and Detroit-Big Cliff.

Total capital investment of the United States Government in the commercial power components of operating projects only as of June 30, 1954, amounted to $1,013,006,646. This is shown on the tables below. The amount of this power capital investment repaid as of June 30, 1954, was $170,409,916, or 16.82 percent. After application of this repayment, the net power capital investment in these projects as of June 30, 1954, amounted to $842,596,730. In addition to the above repayments of capital, the operation and maintenance expenses and interest charged to expense have been repaid annually.

[1] These are the combined revenues of the Columbia River Power System and include amounts totaling $101,040 collected directly at the generating plants as well as those collected by the Bonneville Power Administration.

Columbia River power system—Summary of Federal investment in the operating power projects and repayment as of June 30, 1954

	Gross investment	Repayments	Net investment
Investment in current expense:			
Operation, maintenance, etc.	$85,272,271	$85,272,271	
Interest [1]	84,883,402	84,883,402	
Total current expense	170,155,673	170,155,673	
Investment in capital assets:			
Electric plant, inventories, etc.[2]	1,070,634,559	170,409,916	$900,224,643
Unexpended appropriations	57,627,913		57,627,913
Total, capital investment	1,013,006,646	170,409,916	842,596,730
Total, Federal investment	1,183,162,319	340,565,589	842,596,730

[1] The Columbia River power system does not receive appropriations for payment of interest, but imputes and includes in its accounts provisions for interest expense and returns receipts to the Treasury as repayment of such expense.

[2] Includes interest during construction of $39,460,383, which will be repaid to the Treasury as part of the capital cost of electric plant, and $13,491,786 of interest charged to future downstream regulation recoverable from operations of future downstream hydroelectric plants.

ATTITUDE OF NON-FEDERAL POWER INTERESTS TOWARD FISCAL YEAR 1956 BUDGET

Mr. EVINS. In your general statement, you indicate that all of the people composing the northwest power pool are in agreement with your 1956 program; that includes the public utility districts and the private utilities.

Dr. PEARL. We submitted to the public utility districts, the Federal agencies, private utilities, and all of our other customers a preliminary statement of our budget that we intended to submit and called them together at a meeting and asked them to criticize it in any way they saw fit. As a result of that, I think I can say definitely they are in agreement.

Mr. EVINS. Thank you, Dr. Pearl.

ESTABLISHMENT OF RATES

Mr. HAND. Doctor, how are your rates fixed when you are selling electricity to consumers?

Dr. PEARL. We have rate schedules that we use. They are the same rate schedules that have been in force, I think, since the beginning of Bonneville. The base rate, as I told you yesterday, is $17.50 per kilowatt-year. That is 2 mills per kilowatt-hour at 100 percent load factor. Of course, the rates to each customer vary depending on the load factor and demand.

Mr. HAND. When was that rate fixed?

Dr. PEARL. I think it has been in effect ever since Bonneville. Mr. Ostrander, can you tell us definitely?

Mr. OSTRANDER. 1938, I believe.

Mr. HAND. By whom was it fixed?

Mr. OSTRANDER. That rate was prepared, of course, by the staff of the Bonneville Power Administration and approved by the Secretary of the Interior. It required also approval of the Federal Power Commission by statute.

Mr. HAND. Has the rate been increased since that date?

Dr. PEARL. It has not.

Mr. HAND. Generally speaking, how does that rate compare with the rates of large-size private utility systems, for example, the Commonwealth Edison and Consolidated Edison of New York?

Dr. PEARL. It is a pretty safe statement to say that ours is the cheapest rate of any in the United States. Mr. Ostrander, you have checked those rates.

Mr. OSTRANDER. I do not want to say I have checked them. I would like to point out that ours is a wholesale rate, of course. These other companies do engage in the retail business. I think, broadly speaking, you can say our rate is the lowest rate in the United States for comparable large power wholesale.

Mr. HAND. Can you get up a comparison of the rates for the record, to be supplied later, or is there no wholesale comparison?

Mr. OSTRANDER. I think it would be very, very difficult to compare. We might make a comparison like this: I recall—I believe it was fiscal year 1952—the Tennessee Valley Authority averaged about 4.25 mills per kilowatt-hour sold. That was the average revenue per kilowatt-hour sold. Our average revenue per kilowatt-hour sold is in the vicinity of 2.35 mills, or 2.4 mills, including miscellaneous items, per kilowatt-hour sold. That gives you some idea.

Now a large retail power company, such as the Commonwealth Edison, would probably average per kilowatt-hour sold for all business perhaps nearer 2 cents. The retail distribution company, obviously, must charge a great deal more for retail power than for wholesale.

Mr. HAND. Will you submit a comparison of rates for the record between your own system, TVA, Commonwealth Edison and Consolidated Edison of New York?

Mr. OSTRANDER. Very well.

(The following information was supplied later:)

COMPARATIVE PRICE PER KILOWATT-HOUR USING RATE SCHEDULES CLOSEST TO BONNEVILLE WHOLESALE RATES

Commonwealth Edison of Chicago and Consolidated Edison in New York have steam generation and operate in congested areas requiring large installation of underground facilities.

Four assumed demands were used with varying load factors as shown.

Kilowatt demand	Load factor	Mills per kilowatt-hour			
		Chicago [1]	New York [2]	TVA [3]	BPA [4]
	Percent				
100,000	95	6.27	10.8	4.2	2.1
100,000	60	7.44	11.9	5.4	3.2
5,000	60	8.49	12.1	6.4	3.3
500	50	12.6	16.1	6.9	3.6

[1] Commonwealth Edison Co. of Chicago schedule, Large Commercial Service (11).
[2] Consolidated Edison Co. of New York schedule, General Service (SC-2).
[3] Tennessee Valley Authority schedule, Large Light and Power (B-3.1).
[4] Bonneville Power Administration schedule E-4 except C-4 used on 100,000 kilowatt at 95 percent load factor.

NOTE.—All schedules except BPA from National Electric Rate Book of Federal Power Commission.

Mr. HAND. Doctor, are you earning a good profit?

Dr. PEARL. Yes, we are.

Mr. HAND. In your justifications, on page BP–9, the statement is made:

Total operating revenues of the commercial power operations of the Columbia River power system, from inception to June 30, 1954, were $349,746,787.

That is a correct figure, I take it?

Dr. PEARL. Yes.

Mr. HAND. The statement goes on to say:

After application of these revenues to operation and maintenance costs, depreciation costs, interest costs and miscellaneous income adjustments, there remained net revenues of $101,774,950.

That is a correct statement?

Dr. PEARL. Yes, sir.

Mr. HAND. Give me a general statement, if you will, as to how payments are made into the Federal Treasury.

Mr. OSTRANDER. All of our cash receipts from the sale of energy are deposited, first, in a special account in the Treasury. That money, in turn, is transferred from that special account to the reclamation fund for the account of the Columbia Basin project, for example, and to the general fund for the account of the Corps of Engineer projects and the Bonneville Administration system. The amounts that are transferred from the special account to these other Treasury funds for each project are determined by the payout schedules and agreements. However, we only have agreements so far on the two projects, Grand Coulee and Bonneville Dam, for which we have definitive cost allocations. On the others, we have been getting together informally with the construction agencies and agreeing year by year on the amount to be deposited for that year pending final allocation of costs and the final agreements and payout schedules.

Mr. HAND. What finally becomes of the net profit? Does it go into the surplus account and then is reappropriated, or what?

Mr. OSTRANDER. It all goes back to the Treasury.

Mr. HAND. In effect, it is surplus revenues as far as they are concerned and is then appropriated by Congress for these construction programs?

Mr. OSTRANDER. Of course a good deal of it goes into the general fund and they appropriate from the general fund for projects, and some of it goes to the reclamation fund and Congress appropriates out of that for certain projects.

Mr. HAND. Do you have figures available to indicate the estimated net profit for the next fiscal year?

Mr. OSTRANDER. Yes. I can give it to you for the fiscal year 1954. In fiscal year 1954, the gross operating revenues were $45,317,693. After deducting all expenses of operation, maintenance, marketing, administration, depreciation, interest on the investment, we had net revenues of $8,637,710.

Mr. HAND. What rate of interest on the investment do you use?

Mr. OSTRANDER. Two and one-half percent.

Mr. HAND. And the investment is based on the capital cost of construction which develops electricity, as well as transmission lines?

Mr. OSTRANDER. That includes both power generation and transmission installation, the total investment of the Federal Government less whatever has been paid. The net debt, in other words, is the basis for interest payment.

WATER SUPPLY

Mr. HAND. I understood you to say, Dr. Pearl, that in March you had the lowest flow of record on the Columbia River.

Dr. PEARL. That is right.

Mr. HAND. On page BP–8 of your justifications I note the statement:

> Streamflow conditions this year are considerably above median in the Columbia Basin and adjacent areas. All firm and interruptible industrial loads of the Administration, including the full requirements of the privately owned utilities, have been supplied to date.

I do not see how you can reconcile those two.

Dr. PEARL. This was written before we came to that time.

Mr. HAND. So your low flow has occurred quite recently?

Dr. PEARL. That is right. We have no record of the flow not starting to increase in the middle of April before this year.

Mr. HAND. And this year it has not started to increase?

Dr. PEARL. Now it has started to increase, but has not increased in appreciable amount.

Mr. HAND. So that your present condition sort of outdates the statement made in the justifications?

Dr. PEARL. That is right. Last year was one of the best water years we have had in the Northwest. That is indicated by our current sales and the revenues that we took in.

POSSIBLE USE OF ATOMIC ENERGY

Mr. HAND. Is the Administration engaged in any future thinking, shall we say, of the possibility of atomic energy being used for supplying electric current on a large scale?

Dr. PEARL. Not as an official function of Bonneville. Our chief engineer happened to be very active in that field before he came with Bonneville; so, of course, he is keeping us up to date on that. But, as an official function of Bonneville, we are not.

Mr. HAND. Do you maintain any formal liaison with the Atomic Energy Commission on that point?

Dr. PEARL. Only what we have through out chief engineer.

BELLINGHAM HARBOR PROJECT

Mr. JENSEN. Colonel Whipple, I have a memo here from Congressman Jack Westland of Washington regarding the Bellingham Harbor project which says:

> In confirmation of our conversation the other day, my information is that some $1,388,000 has been proposed by the Army engineers for Bellingham Harbor. While this project is considered to be worthy and urgently needed by the Army, it was not recommended by the Army to the Bureau of the Budget because of the Budget Bureau's criterion against shallow water projects. I would appreciate it if you would inquire of the Army witnesses today if the Bellingham project was included in the budget request.

Was it?

Colonel WHIPPLE. It was not included in our request to the Bureau of the Budget.

Mr. JENSEN. If not, whether the project has been approved by the Army as being both necessary and needed.

Colonel WHIPPLE. Yes; it has, sir.

NEED FOR UPSTREAM STORAGE DAMS

Mr. JENSEN. Dr. Pearl, I have been told that the Northwest Power Pool West Group Report shows that by 1961 there will be, under both adverse and median water conditions, a surplus capacity above load requirements amounting to as much as 2 million kilowatts in the summer months, and an average for the 4-months period of over 1 million kilowatts. This indicates to me a pressing need for upstream storage to even up the flow a little. In this connection, if Libby cannot be started due to the Canadian situation, would not the Clear Water River, which I understand has considerable flood control potentials for reducing floods on the lower Snake and Columbia River, offer good possibilities?

Dr. PEARL. The answer to that, of course, is "Yes." Any upstream storage that would tend to firm up what I consider interruptible is desirable and we will admit we have what we call secondary power in large quantities available in varying amounts during the year. In other words, if you were talking about power available for one-half of the year, we would have almost 1 million kilowatts of power that we call secondary or dump power available for one-half of the year. To find a market for that power, of course, is the problem. Nobody wants their lights off half of the year.

Colonel WHIPPLE. I can supplement that if you would like. The Clearwater projects, in our opinion are among the finest potentials for further development in the basin. It is true they are the best alternatives to the possible Canadian storage developments in order to firm up the power on all of our mainstem projects.

We have completed a survey report on those projects which has been coordinated with the other agencies of the Government and which proposes to recommend authorization of those projects in the very near future. The two Clearwater projects concerned are the Bruce's Eddy and Penny Cliffs. They have approximately 4 million acre-feet of storage between them, which is very urgently needed for flood control and will also necessitate the balancing of the streamflow and power output from the other projects.

Mr. JENSEN. To even up the flow?

Colonel WHIPPLE. Yes.

Mr. JENSEN. And the energy producing capacity of the river, so that in the off months you would not have the loss of energy which you now have. Is that right?

Colonel WHIPPLE. Yes. And in addition, since the dams will be over 600 feet high, they will generate a great deal of power at the site. They are among the very finest undeveloped storage potential power and flood control projects in the United States.

Mr. JENSEN. Do you agree with that, Doctor?

Dr. PEARL. I do.

CLEARWATER PROJECT

Mr. JENSEN. What is the status of investigations on Clearwater at the present time?

Colonel WHIPPLE. The report has been prepared; the survey report has been prepared on those projects by the Corps of Engineers in close cooperation with the Department of the Interior, which was investigating sites in adjacent watersheds. That report is complete. The construction of those two projects has been recommended to the Board of Engineers for Rivers and Harbors, and the proposed report of the Chief of Engineers recommending those projects has been sent to the governors and the other Federal agencies. The coordination has been completed and I believe favorable comments received. We are now completing the final coordination with the Interior Department. I am informed that the final act is being completed today and we contemplate submitting this report to the Bureau of the Budget early next week with the favorable recommendation of these two projects.

Mr. JENSEN. Thank you. You agree in that statement, Dr. Pearl?

Dr. PEARL. I do.

Mr. JENSEN. Have local interests cooperated in all of the investigations and did they indicate their desire to participate in the use of the surplus of the river? Have they proposed to build power facilities and pay for falling water after the Hoover Dam pattern?

Colonel WHIPPLE. There was an application for a preliminary permit for both of those dams by a group of power companies last year. They have now withdrawn the application for the Penny Cliffs project. The company is still interested in the building of all or part of the Bruce's Eddy project, but have made no definite proposal, and we understand that on account of the extensive downstream benefits for both flood control and power, that those could only be built by a piece of partnership legislation, although theoretically they could build it under a Federal Power Commission license. But from a practical point of view they would not be interested in doing it by license alone. However, that is a matter of opinion and it is true the company is interested in a partnership arrangement on the Bruce's Eddy project.

GLACIER VIEW PROJECT

Mr. JENSEN. In connection with the Glacier View project, you would provide some needed storage, and what is the status of this project?

Colonel WHIPPLE. The Glacier View project is also a good flood control and power project, although not as good for flood control as the Clearwater project we discussed.

Mr. JENSEN. Just where is the Glacier View project?

Colonel WHIPPLE. Up in Glacier National Park on the North Fork of the Flathead River, immediately north of Hungry Horse Dam, immediately adjacent to and on the edge of Glacier National Park in Montana. The dam would have about 3 million acre-feet of storage and have favorable effect for flood control on the Flathead River, and also extending downstream insofar as the effect on the main Columbia, and have smaller effect on the Columbia down the South Fork of the main stream.

Mr. JENSEN. Do you have a good dam site?

Colonel WHIPPLE. Yes, an excellent site, and the economics are very favorable.

Mr. JENSEN. Is it as good as the Hungry Horse site?

Colonel WHIPPLE. I believe it is. However, at the hearing on this project in 1948 there was tremendous opposition voiced by representatives of wildlife interests and park interests, because they want to use the reservoir area on the right of the boundaries of Glacier National Park. The reservoir area is on the western boundary of the park and the reservoir area would infringe on the edge of the park. There were so many protests that the project was never recommended by the Corps of Engineers. From the design and economic point of view, it is an excellent project; but a proposal for its construction has not been revived and there is no proposal that an investigation be authorized at the present time.

REDUCTION OF RATES TO FIRM UP POWER SUPPLY

Mr. JENSEN. Doctor, would not a proper change in BPA rate structure to give an incentive to utilize the surplus power in high flow months in connection with existing or added steam power materially increase the firm power supply of the region and utilize that power which otherwise may be wasted?

Dr. PEARL. That question, Mr. Jensen, can be answered from a number of points of view.

No. 1 is this: Today we are able to sell some of our high quality interruptible power which accounts for something like 20 percent of our revenue. There is no question but what the answer to the question that you have asked is "Yes," that more power would be firmed up by offering cheaper rates on our interruptible power. It would be an incentive to increase the firm power supply. Such cheaper rates would apply to low-quality interruptible only, however.

I might mention, sir, that we have a rate structure study underway right now in the Northwest, I mean the Bonneville Power Administration has.

Mr. JENSEN. Thank you.

CONTRACTS WITH PREFERENCE CUSTOMERS

I understand that you have inherited a large number of requirements type contracts with the so-called preference customers. Is it not true that operation of these contracts defeat, in large measure, the intent of Congress when it expressed the desire that residential and rural customers be given preference in the use of power from Bonneville?

Dr. PEARL. We do have contracts with our preference customers which are requirements type contracts. How far you can go in giving an answer to that is just a little hard to say. What you are saying is that if there were a real shortage of power, would not that be true? As long as there is plenty of power, the problem does not become a critical one. Have I answered your question sufficiently, sir?

Mr. JENSEN. I think you have. You are on top of the situation anyway, and you are giving it consideration.

Dr. PEARL. Yes, sir; we are giving it consideration.

Mr. JENSEN. As a matter of fact, are not large segments of the residential and rural customers in the Pacific Northwest actually discriminated against under the operations of these contracts which were executed under directives issued a number of years ago?

Dr. PEARL. Again the same answer applies. That is to say that as long as we have plenty of power available there is no discrimination. If there was a shortage of power then there might be.

Mr. JENSEN. You would have to discriminate?

Dr. PEARL. Yes, that is right.

ECONOMY MEASURES INTRODUCED

Mr. JENSEN. Last year the committee made a number of suggestions, and I think probably at that time you felt, Doctor, that we were being a little critical, but they were made in all good conscience. You have carried through and followed the committee's recommendations on many of the economy moves that we thought could be made in your Administration.

Now, would you at this time care to elaborate a little on some of the things you have done since you have been there which you feel have saved money and effort and cut out redtape that was not necessary?

Dr. PEARL. We have applied curtailment in staff, and we have attempted to organize on a sound basis and form an employment group that we feel can carry the load. When peaks come along we would like to think in the future that we would handle those by way of temporary employment or contract. The only growth we can see that we think is continuing, is operation and maintenance. The physical plant for the next 5 years will increase because the amount of power generation has increased. Therefore, our facilities must increase as the power generation increases, and we must have a somewhat larger staff to operate and maintain these increased facilities.

Our construction program will be relatively constant but the peaks that do come can be carried out by way of temporary employment or contract, and I might just close by saying that we are anxious to comply with the requests of the Congress, and I realize that those all originate in this committee.

KITSAP LINE

Mr. JENSEN. You made some construction changes. As I remember it, the committee felt that it was not necessary to build a certain line or cable in the Kitsap area. The committee felt it was not necessary to build an additional line, but that you could improve the present line. What did you do in that instance?

Dr. PEARL. We did make a change. You recall last year we came in with three alternatives, one of which we approved, and if you look at the map that we have up there, the green lines here show our work under construction [indicating]. The plan was to cross salt water to Kitsap with a line [indicating].

Mr. JENSEN. Yes.

Dr. PEARL. The change which we proposed was that we would only have one line here [indicating] to carry the load and the other line going south to here [indicating], these facilities being strengthened to carry the balance of the power.

Now, there was a risk connected with the pipeline, and we did not think the benefits involved justified the risk.

Mr. JENSEN. Yes. It saved considerable money, did it not?

Dr. PEARL. Yes. I would have to ask the engineers for that figure. That was our hope that it would save money.

Mr. JENSEN. Have you not been able to make a very fine working deal with the city of Tacoma?

Dr. PEARL. Yes, we have, and that, of course, appears in our contract, whereby by putting in a short line here [indicating the proposed 230 kilovolt Chehalis-Mayfield line] from their new facilities we will be able to integrate their power into our circuit, whereby we can improve our voltage and they, in turn, of course, will receive power from us through our grid, thereby bringing about benefit to both Tacoma and Bonneville, or the grid, whatever you want to call it. That is a material saving.

Mr. JENSEN. For a number of years that deal was in the offing, but it never had been consummated until you were able to get the job done, and I want to compliment you on it.

Dr. PEARL. Yes, sir; and I would like to, in turn, compliment my engineers.

Mr. JENSEN. All of us would be in an awful fix if it were not for our staff.

Dr. PEARL. Yes.

Mr. JENSEN. This Appropriations Committee would be in a bad way if it were not for the clerks of the committee. I have said many times that they have to be better informed on these matters than we are and, generally speaking, they are. Of course, that is their job, and we have so many other things to do that we depend on our clerks and our staff to a very great degree, just as you depend on your helpers. We all have to work together to get this job done for the good old United States of America.

LIBBY PROJECT AND HELLS CANYON PROJECT

In connection with the apparent need for additional storage to firm up the capacity for existing plants and those under construction I have some information here relative to the power value of the authorized Libby project, and the unauthorized Hells Canyon project. Here is the information as it has been given to me.

Now, I am going to read it, and then I will let you comment on it.

LIBBY PROJECT

The Libby project, authorized in 1950, would have a useful storage of 5 million acre-feet, an installed capacity of 600,000 kilowatts with provision for an ultimate installation of 800,000 kilowatts.

The storage would be usable downstream through existing plants and those under construction with heads totaling about 1,000 feet in the United States and over 300 feet in Canada.

The Corps of Engineers reports that operating together with the existing and under-construction plants downstream, Federal plants consisting of Grand Coulee, Chief Joseph, McNary, The Dalles, and Bonneville, this project would add 805,000 kilowatts of average continuous power, 248,000 kilowatts at site, and 557,000 kilowatts at downstream plants.

Utilized at the system load factor this would provide around 1,150,000 kilowatts of dependable capacity for serving load. The estimated cost of the Libby project, I understand, is $263,321,000. I am informed right now that this has been changed to two-hundred-and-sixty-eight-million-and-some-hundred-thousand dollars.

Hells Canyon

Hells Canyon Dam would add about 600,000 kilowatts average continuous power of which about 160,000 kilowatts would be credited to the three downstream plants at McNary, Bonneville, and The Dalles. Due to the large drawdown at Hells Canyon that would occur in an adverse year there would be a limitation on capability of Hells Canyon at such time. The addition of Hells Canyon Dam to the Federal power system at this time could not be relied upon during an adverse-stream-flow year, because of the above-mentioned factors, to add more than around 700,000 kilowatts of dependable capacity for carrying the system load.

Comparison of Libby and Hells Canyon

The Libby project, at an estimated cost of $268 million, and with a potential of adding over 1 million kilowatts to the load-carrying ability of the present area power supply is, without question, much superior to the Hells Canyon Dam with an estimated cost of $356,800,000 (this is on a 1948 base and may be considerably higher now) and a power potential addition to the present regional power supply of only 700,000 kilowatts.

Upstream depletion for additional irrigation would undoubtedly reduce the average power output at Hells Canyon or, conversely, a limitation would be placed on such additional irrigation development.

The record made at the Federal Power Commission hearings proves without a doubt that the three low dams proposed by the local utility for construction in the Hells Canyon reach of the Snake River, would provide the most economical development for that section of the river.

Mr. Jensen. Doctor, do you care to comment on that? The reason I bring that up is because one way or the other, this committee, sooner or later, is apparently going to have to deal with that matter.

It is our responsibility to recommend appropriations. Naturally, we are all interested in doing the right thing and appropriating money where it should be appropriated and for the things it should be expended to the best advantage of everyone concerned.

While there may be some who say that I should not inject this into the hearing at this time, I think it is proper, because of our responsibility as members of this committee, that we get as much information on this controversial matter as we possibly can. I have not made up my mind, I might say, one way or the other, on this issue. I am groping for light. I think that will be the consensus of opinion of the members of this committee and the Members of Congress, generally speaking. We want to get all of the information we can because sooner or later we have to act on this issue.

Dr. Pearl. In connection with the Canadian storage, we have a committee out in the area that has been working on this and which would be very familiar with the figures on Libby. I would rather answer that by submitting it for the record at a future date.

I think the Army engineers and Reclamation would have quicker knowledge of this than I would have.

Mr. Jensen. That is all right; I want you to take plenty of time and give us the best information you can possibly provide, because there is a lot of money involved in this thing, and the future of the area is involved in it to a very great degree. I would not rush you on anything. You just take your own good time and supply whatever information you think right and proper for the record.

Mr. Crosthwait. I would like to say with reference to Hells Canyon that the economics of it and the problems that Mr. Jensen has cited with reference to the values of that will all be covered at such time as Hells Canyon is being considered by the Committee on Interior and Insular Affairs, which has the problem of authorizing those

projects or denying the authorization of them. I am sure that it would be very difficult, for the purpose of this record, to supply the very large amount of economic data that would be required to answer the questions correctly or accurately.

Mr. JENSEN. I understand exactly what you mean. I will say this in reply to your statement, that not every Member of Congress will be able to read the whole record of the Interior and Insular Affairs Committee. It is going to be very complicated. The views and facts should be reduced down to a very few pages so we can all find time to read it and inform ourselves on it. I hope that I am not asking anything unreasonable. If I am, you can think it over, and if you would rather not at this time take a position on it, why, I shall not force it.

I am not asking you to put yourselves in an untenable position, but, after all, you are the folks we depend on. We would like to hear you say it in plain language, whether you say it before us, or whether you say it in the record in the hearing. Now it is up to you.

Colonel WHIPPLE. I would like to say, for the Corps of Engineers, that the information on the Libby project, that you have given is substantially correct. The only qualification I would make insofar as the figures are concerned is that we are reviewing the annual downstream benefits on a different basis, on a longer range approach, and they may be somewhat reduced for the Libby project.

The project remains a very fine project. It has a high benefit-cost ratio, and we are prepared to submit information on it for the record.

(The information on the Libby project follows:)

LIBBY RESERVOIR, MONT.

Authorization: Flood Control Act of 1950.
Usable storage: 5,010,000 acre-feet.
Installed capacity:
Initial, 600,000 kilowatts.
Ultimate, 800,000 kilowatts.

Usable downstream through approximately 1,000 feet of head in the United States, including the John Day and Priest Rapids Dams, which are authorized but not under construction; also approximately 300 feet in Canada.

Continuous power added at dams downstream, 540,000 kilowatts.

NOTE.—More recent studies indicate that taking a longer range viewpoint the credit for power added downstream should be reduced, for this and other storage projects, to represent more accurately conditions which will occur in the longer range future. Such studies have not been completed.

Estimated cost, $268 million.

On the question of Hells Canyon Dam, I do not believe that Dr. Pearl meant to give the impression that the Corps of Engineers is engaged on any comparative study of that project at this time, as we are not.

Mr. JENSEN. Of course, I do not expect you to take any definite position. What I want is such information, facts and figures, as you know you would be completely justified in giving us. That is the information that at least I would like to have from you. You do not have to say you are for one side or the other. It is information that I would like to have, Mr. Chairman. I do not want to make it tough for you. I do not want you to say that we are for this thing as against this thing, but rather to say here are the facts as we see them. That is very simple, is it not; that is not making it difficult, is it?

Dr. PEARL. I would like to make one statement for the record.

The information that we have, Mr. Jensen, is not primary information. As far as Libby is concerned, we get the bulk of our information from the Army engineers. The way in which we act in this is in the transmission of the power which is generated, but we do, of course, have this other information. We obtain it from other sources. I do not think it is necessary for me to tell you, but you know that there is available additional information on some of these figures as testified.

Mr. JENSEN. Yes; we know.

Dr. PEARL. As testified to by many engineers.

Mr. JENSEN. We are going to have to decide this issue one of these days, that is why I would like to have all of the information I can get. I have not yet made up my mind how I would vote on this matter.

In either proposition I understand that irrigation is not a consideration, which is always an important factor, so far as I am concerned, in spending a lot of money for any hydroelectric project, whether it be private or public.

Dr. PEARL. Reclamation should be able to give you the answer on whether there is any irrigation involved in either one of them, at least in Hells Canyon.

Mr. JENSEN. All right.

(The following information was supplied later:)

STATEMENT WITH RESPECT TO HELLS CANYON AND LIBBY PROJECTS

As previously stated, Bonneville Power Administration does not have any primary data with respect to new generating plants. These data are the responsibilities of the dam construction agencies. The most recent available data with respect to the Hells Canyon project were presented in extensive hearings before the Federal Power Commission. Unfortunately, the record indicates widely varying views of competent engineers as to the costs and benefits of Hells Canyon. An evaluation of this testimony by Bonneville Power Administration would involve the substitution by Bonneville Power Administration of its judgment for that of the Federal Power Commission, which has had the matter under investigation for some time. Data with respect to Libby were previously commented upon in this hearing by the Corps of Engineers' representative, who would be Bonneville's source of information on this project.

Mr. EVINS. Of course, as Mr. Jensen has stated, this matter is not before this committee at this time with a request for funds or for the matter of justification but, as he has indicated, we all would like to have the combined judgment of the Bonneville Administration, the Reclamation Bureau and the Corps of Engineers on it.

Generally speaking if you are looking for power, if power is the thing that you are trying to achieve, additional electric power, you build high dams for that purpose. The low dams do not produce power, but they are built for irrigation purposes. Also, generally speaking, you build low dams in areas where there is a lot of low alluvial flat lands, and you generally build your high dams in mountainous areas where there are steep sides to the streams or in valleys for the production of power.

If you are looking for power the high dams provide the answer, is not that correct, Doctor?

Dr. PEARL. Yes, the higher the head, the more power you get.

Mr. EVINS. I believe the Corps of Engineers, the Bonneville Power Administration and, perhaps, the Bureau of Reclamation would all agree that if the thing you are trying to achieve is hydroelectric power then that is achieved through building high dams.

Mr. JENSEN. Of course, the three low dams as proposed by the private power companies produce more power than the one high dam. I do not know what the cost is, I do not know the comparative cost.

Of course, I do know that if we build the high dam we will have to appropriate the people's money for it. If the private utilities build the three low dams we will not have to appropriate the people's money for those.

Mr. EVINS. Bonneville Dam, which is quite large, is considered as what type of dam, Doctor?

Dr. PEARL. It is not considered a high dam.

Mr. EVINS. It is not considered a high dam?

Dr. PEARL. No.

Mr. JENSEN. No; it is considered a low dam.

Mr. EVINS. But the return from the power investment, the revenue, has been substantial from the Bonneville project, according to your figures here.

Dr. PEARL. Yes; that is right.

Mr. EVINS. The investment in it is $59,813,926, and there had been repaid into the Treasury as of June 30, 1954 from Bonneville Dam, $21,790,983, or a percentage return of 36.43 from the power investment in Bonneville. That is a pretty good record.

STATUTORY PROVISIONS FOR REPAYMENTS

I wanted to ask you, Doctor, just what the statute provides for Bonneville with respect to repayment into the Treasury?

Dr. PEARL. There is a different statute on each one of these projects. Mr. Ostrander works with this, and I will ask him to make a statement on that.

Mr. EVINS. Generally speaking, what do your statutes provide with respect to repayments?

Mr. OSTRANDER. The Bonneville Project Act provides that our rates shall be fixed having regard for the recovery of the cost of producing and transmitting energy, including amortization of the capital investment over a reasonable period of years.

Mr. EVINS. Over a reasonable period of years?

Mr. OSTRANDER. Yes.

Mr. EVINS. It does not provide that you shall pay so much into the Treasury on an annual basis?

Mr. OSTRANDER. No, sir.

Mr. EVINS. Has it been your custom to repay annually into the Treasury, or at periodic times?

Mr. OSTRANDER. We attempt to schedule repayments fairly evenly. The obligation is not an annual one, but over a period of years.

Mr. EVINS. As a matter of practice are you making payments annually?

Mr. OSTRANDER. Yes, sir.

Mr. EVINS. The TVA Act provides for annual payments into the Treasury.

Mr. OSTRANDER. Since our revenues come in annually with some regularity, but the years do fluctuate somewhat between the high years and the low years; we try to pay annually.

Mr. EVINS. What is the average amount that you pay into the Treasury annually?

Mr. OSTRANDER. We paid $47 million into the Treasury last year, and we expect to have about $51 million cash receipts this present fiscal year.

Mr. EVINS. Mr. Reporter, I think it would be well to have the return of power capital investment on Bonneville through June 30, 1954, inserted in the record at this point.

(The matter referred to is as follows:)

BONNEVILLE POWER ADMINISTRATION—COLUMBIA RIVER POWER SYSTEM

Return of power capital investment (operating projects only), June 30, 1954

Project	Power capital investment	Repaid as of June 30, 1954	Percent repaid	Net power
Bonneville Power Administration	$347,767,945	$90,064,194	25.90	$257,703,751
Bonneville Dam project	59,813,926	21,790,983	36.43	38,022,943
Columbia Basin project	221,462,229	51,031,697	23.04	170,430,532
Hungry Horse project	87,184,051	2,855,592	3.28	84,328,459
Albeni Falls project	26,941,232	302,979	1.13	26,638,253
McNary Dam project	231,322,397	3,535,258	1.53	227,787,139
Detroit-Big Cliff project	38,514,866	829,213	2.15	37,685,653
Total	1,013,006,646	170,409,916	16.82	842,596,730

AMOUNT OF INTEREST PAYMENTS

Mr. JENSEN. How much interest did you pay in the fiscal year 1954?

Mr. OSTRANDER. The total interest expense of the entire power system for the fiscal year 1954 was $12,248,197.

Mr. JENSEN. You will pay more than that this year?

Mr. OSTRANDER. I assume that it will be somewhat higher because more investment is in service this year.

Mr. JENSEN. Yes.

(Discussion off the record.)

CONSTRUCTION

Amounts available for obligation

(Balances for June 30, 1954, are as certified under sec. 1311, Public Law 663)

	1954 actual	1955 estimate	1956 estimate
Appropriation or estimate	$38,866,000	$24,314,000	$16,456,000
Transferred to "Salaries and expenses, Office of the Solicitor, Interior," pursuant to Public Law 465		−120,125	
Adjusted appropriation or estimate	38,866,000	24,193,875	16,456,000
Unobligated balance brought forward	9,979,572	14,857,473	10,013,000
Reimbursements from non-Federal sources	105,784	109,000	68,000
Reimbursements from other accounts	166,532	100,000	100,000
Total available for obligation	49,117,888	39,260,348	26,637,000
Unobligated balance carried forward	−14,857,473	−10,013,000	
Obligations incurred	34,260,415	29,247,348	26,637,000
Comparative transfer to "Salaries and expenses, Office of the Solicitor, Interior"	−109,007		
Total obligations	34,151,408	29,247,348	26,637,000

NOTE.—Reimbursements from non-Federal sources above are from proceeds of sale of personal property (41 U. S. C. 481 (c)).

Obligations by activities

Description	1954 actual	1955 estimate	1956 estimate
Direct Obligations			
1. Construction in progress	$26,604,753	$23,688,348	$20,501,000
2. New construction	6,520,503	4,669,000	5,536,000
3. General plant	859,620	790,000	500,000
Total direct obligations	33,984,876	29,147,348	26,537,000
Obligations Payable Out of Reimbursements From Other Accounts			
1. Construction in progress	166,532	100,000	100,000
Total obligations	34,151,408	29,247,348	26,637,000

Obligations by objects

Object classification	1954 actual	1955 estimate	1956 estimate
Summary of Personal Services			
Total number of permanent positions	2,020	1,650	1,255
Full-time equivalent of all other positions	155	57	56
Average number of all employees	1,928	1,350	1,247
Number of employees at end of year	1,820	1,250	1,250
Average salaries and grades:			
General schedule grades:			
Average salary	$4,948	$5,117	$5,226
Average grade	GS–7.5	GS–7.7	GS–7.7
Ungraded positions: Average salary	$5,297	$5,357	$5,354
Personal service obligations:			
Permanent positions	$8,668,460	$6,447,200	$5,985,427
Positions other than permanent	738,054	305,000	292,943
Regular pay in excess of 52-week base	35,043	27,500	25,900
Payment above basic rates	161,971	168,400	129,530
Excess of annual leave taken over leave earned	−30,644		
Total personal service obligations	9,572,884	6,948,100	6,433,800
Direct Obligations			
01 Personal services	9,532,235	6,926,100	6,411,800
02 Travel	1,099,816	757,000	695,200
03 Transportation of things	230,043	302,800	239,800
04 Communication services	110,241	89,100	83,000
05 Rents and utility services	124,786	83,300	64,000
06 Printing and reproduction	4,625	9,100	9,000
07 Other contractual services	150,597	420,810	137,700
08 Supplies and materials	5,072,290	6,088,738	4,405,300
09 Equipment	9,426,756	6,051,400	8,771,100
10 Lands and structures	8,739,285	8,921,500	6,320,100
11 Grants, subsidies, and contributions	23,529	36,900	12,000
13 Refunds, awards, and indemnities	9,052	1,600	1,400
Subtotal	34,523,255	29,688,348	27,150,400
Less services performed for—			
Operation and maintenance	454,601	498,000	570,400
Other accounts	101,176	43,000	43,000
Net direct obligations	33,967,478	29,147,348	26,537,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	40,649	22,000	22,000
02 Travel	4,755	1,000	1,000
04 Communication services	5	19,000	19,000
06 Printing and reproduction	3,961		
07 Other contractual services	364		
Services performed by other accounts	101,176	43,000	43,000
08 Supplies and materials	15,622	15,000	15,000
Total obligations payable out of reimbursements from other accounts	166,532	100,000	100,000
Total obligations	34,134,010	29,247,348	26,637,000

Obligations by objects—Continued

Object classification	1954 actual	1955 estimate	1956 estimate
ALLOCATION TO BUREAU OF PUBLIC ROADS, DEPARTMENT OF COMMERCE			
Average number of all employees	1		
Number of employees at end of year			
01 Personal services: Positions other than permanent	$2,008		
06 Printing and reproduction	5		
07 Other contractual services	42		
08 Supplies and materials	25		
10 Lands and structures	9,907		
15 Taxes and assessments	13		
Total obligations	12,000		
ALLOCATION TO GEOGRAPHICAL SURVEY			
Total number of permanent positions	1		
Average number of all employees	1		
Number of employees at end of year	1		
Average salaries and grades:			
General schedule grades:			
Average salary	$4,674		
Average grade	GS-7.0		
01 Personal services:			
Permanent positions	$3,031		
Positions other than permanent	102		
Regular pay in excess of 52-week base	13		
Payment above basic rates	2		
Total personal services	3,148		
02 Travel	317		
04 Communications services	579		
05 Rents and utilities	94		
07 Other contractual services	982		
08 Supplies and materials	252		
09 Equipment	21		
15 Taxes and assessments	5		
Total obligations	5,398		
SUMMARY			
Summary of Personal Services			
Total number of permanent positions	2,021	1,650	1,255
Full-time equivalent of all other positions	155	57	56
Average number of all employees	1,930	1,350	1,247
Number of employees at end of year	1,821	1,250	1,250
Average salaries and grades:			
General schedule grades:			
Average salary	$4,948	$5,117	$5,226
Average grade	GS-7.5	GS-7.7	GS-7.7
Ungraded positions: Average salary	$5,297	$5,357	$5,354
Personal service obligations:			
Permanent positions	$8,671,491	$6,447,200	$5,985,427
Positions other than permanent	740,164	305,000	292,943
Regular pay in excess of 52-week base	35,056	27,500	25,900
Payment above basic rates	161,973	168,400	129,530
Excess of annual leave earned over leave taken	−30,644		
Total personal service obligations	9,578,040	6,948,100	6,433,800
Direct Obligations			
01 Personal services	9,537,391	6,926,100	6,411,800
02 Travel	1,100,133	757,000	695,200
03 Transportation of things	230,043	302,800	239,800
04 Communication services	110,820	89,100	83,000
05 Rents and utility services	124,880	83,300	64,000
06 Printing and reproduction	4,630	9,100	9,000
07 Other contractual services	151,621	420,810	137,700
08 Supplies and materials	5,072,567	6,088,738	4,405,300
09 Equipment	9,426,777	6,051,400	8,771,100
10 Lands and structures	8,749,192	8,921,500	6,320,100
11 Grants, subsidies, and contributions	23,529	36,900	12,000

Obligations by objects—Continued

Object classification	1954 actual	1955 estimate	1956 estimate
SUMMARY—continued			
Direct Obligations—Continued			
13 Refunds, awards, and indemnities	$9,052	$1,600	$1,400
15 Taxes and assessments	18		
Subtotal	34,540,653	29,688,348	27,150,400
Less services performed for—			
Operation and maintenance	454,601	498,000	570,400
Other accounts	101,176	43,000	43,000
Net direct obligations	33,984,876	29,147,348	26,537,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services	40,649	22,000	22,000
02 Travel	4,755	1,000	1,000
04 Communication services	5	19,000	19,000
06 Printing and reproduction	3,961		
07 Other contractual services	364		
Services performed by other accounts	101,176	43,000	43,000
08 Supplies and materials	15,622	15,000	15,000
Total obligations payable out of reimbursements from other accounts	166,532	100,000	100,000
Total obligations	34,151,408	29,247,348	26,637,000

Analysis of expenditures

(Balances for June 30, 1954, are as certified under sec. 1311, Public Law 663)

	1954 actual	1955 estimate	1956 estimate
Obligated balance brought forward	$38,924,499	$32,073,288	$25,111,636
Obligations incurred during the year	34,260,415	29,247,348	26,637,000
	73,184,914	61,320,636	51,748,636
Reimbursements	−272,316	−209,000	−168,000
Obligated balance carried forward	−32,073,288	−25,111,636	−19,580,636
Total expenditures	40,839,310	36,000,000	32,000,000
Expenditures are distributed as follows:			
Out of current authorizations	40,839,310	12,000,000	8,000,000
Out of prior authorizations		24,000,000	24,000,000

CONSTRUCTION (LIQUIDATION OF CONTRACT AUTHORIZATION), BONNEVILLE POWER ADMINISTRATION

Amounts available for liquidation of obligations incurred under contract authorization

(Balances for June 30, 1954, are as certified under sec. 1311, Public Law 663)

	1954 actual	1955 estimate	1956 estimate
Balance of appropriation to liquidate, brought forward from prior year	$1,195,974	$374,475	$272,929
Carried to surplus			−272,929
Total expenditures	−821,499	−101,546	
Amount available in excess of requirements, carried forward to subsequent year	374,475	272,929	

Mr. EVINS. Mr. Reporter, insert in the record at this point pages 12 through 15 and the detail on page 19.

(The matter referred to is as follows:)

Bonneville Power Administration—Construction

Appropriation act, 1955	$24,314,000
Transferred to "Salaries and expenses, Office of the Solicitor, Interior"	−120,125
Adjusted appropriation	24,193,875
Decreases: Construction program	24,193,875
Base, 1956	0
Increases: Construction program	16,456,000
Budget estimate, 1956	16,456,000

Analysis by activities

Activities	Adjusted appropriation	Decreases	Subtotal	Estimate, 1956	Increases
1. Construction in progress	$19,395,910	$19,395,910	0	$9,843,000	$9,843,000
2. New construction	4,415,540	4,415,540	0	6,181,000	6,181,000
3. General plant	382,425	382,425	0	432,000	432,000
Total	24,193,875	24,193,875	0	16,456,000	16,456,000

1956 construction program summary

Funds estimated to be available in 1956:

Budget estimate for additional appropriation for construction	$16,456,000
Estimated unobligated balance in 1955 to be available in 1956	10,013,000
Reimbursements from proceeds of sales of personal property	68,000
Reimbursements from other accounts	100,000
Total funds estimated to be available in 1956	26,637,000

Item No. and facility	Estimated cost	Obligations to June 30, 1953	Program fiscal year 1954	Program fiscal year 1955	Program fiscal year 1956				Balance to complete	Page reference
					Construction in progress	New construction	General plant	Total		
100 Major grid:										
101 Grand Coulee-Midway No. 3	$4,505,000	$4,542,000	$44,000	$19,000						
105 Grand Coulee-Columbia-Olympia	14,234,000	13,376,000	745,000	113,000						
106 Grand Coulee-Snohomish No. 2	13,329,000	12,893,000	371,000	65,000						
108 Chief Joseph-Snohomish No. 3 and Chief Joseph-Covington No. 1	30,684,000	7,076,000	5,591,000	4,906,000	$4,256,000	$867,000		$5,123,000	$7,988,000	BP20
109 Lower Olympic Peninsula Service	4,694,000	1,331,000	(39,000)	1,764,000	1,154,000			1,154,000	484,000	BP21
111 Bellingham substation	1,764,000	464,000	1,002,000	298,000						BP23
112 Covington-Olympia	1,074,000	1,031,000	32,000	11,000						
113 Snohomish substation additions	1,423,000	17,000				790,000		790,000	616,000	BP23
115 Tacoma tap	707,000	558,000	43,000	106,000						
116 The Dalles area service	7,000,000	356,000	938,000	1,524,000	2,813,000	64,000		2,877,000	1,305,000	BP24
117 McNary substation	5,078,000	2,431,000	914,000	1,414,000	310,000			310,000	9,000	BP26
118 McNary-Ross	12,704,000	4,980,000	5,548,000	1,471,000	705,000			705,000		BP26
119 Southeast Portland area service	20,683,000	12,662,000	1,525,000	1,980,000	1,882,000			1,882,000	2,634,000	BP27
121 Ross-St. Johns conversion	4,056,000	4,195,000	(178,000)	39,000						
122 Ross-St. Johns-Bethany	3,247,000	270,000	863,000	751,000	1,182,000			1,182,000	181,000	BP28
123 Upper Willamette Valley service	35,558,000	25,667,000	5,713,000	3,715,000	463,000			463,000		BP30
125 Oregon City-Chemawa	1,660,000			92,000	169,000			169,000	1,399,000	BP31
126 Big Eddy-Bethany	8,804,000					100,000		100,000	8,704,000	BP32
130 Southwestern Oregon loop service	7,189,000	6,083,000	900,000	206,000						
132 Coos Bay area service	2,989,000	340,000	407,000	1,271,000	645,000			645,000	326,000	BP33
134 Alvey-Reston	4,169,000					1,464,000		1,464,000	2,705,000	BP34
136 McNary-Franklin-(McNary-Walla Walla)	2,333,000	377,000	11,000	12,000	1,297,000			1,297,000	636,000	BP36
137 McNary-Le Grande	4,501,000	3,535,000	290,000	112,000		564,000		564,000		
141 Midway-Moxee	719,000	283,000	415,000	21,000						
143 Spokane area service	1,611,000	354,000	561,000	190,000	336,000	114,000		450,000	56,000	BP37
145 Hungry Horse-Hot Springs	3,108,000	3,146,000	(61,000)	23,000						
146 Hot Springs switching station	889,000	837,000	34,000	18,000						
148 Hot Springs-Spokane No. 1	7,295,000	7,331,000	(82,000)	35,000	11,000			11,000		BP38
150 System reactive facilities	3,707,000	1,442,000	910,000	981,000	352,000			352,000	22,000	BP38
151 Main system neutral boosters	389,000			244,000	127,000			127,000	18,000	BP40
Subtotal	210,203,000	115,577,000	26,497,000	21,881,000	15,702,000	3,963,000		19,665,000	27,083,000	
200 Seattle (northwest) area:										
204 Upper Olympic Peninsula service	2,486,000	64,000	(8,000)		42,000			42,000	2,388,000	BP42

151	Main system neutral boosters	389,000			244,000	127,000			127,000	18,000	BP40
	Subtotal	210,203,000	115,577,000	26,497,000	21,381,000	15,702,000	3,983,000		19,695,000	27,083,000	
200	Seattle (northwest) area:										
204	Upper Olympic Peninsula service	2,486,000	64,000	(8,000)		42,000			42,000	2,388,000	BP42
205	Snohomish substation terminal	158,000					158,000		158,000		BP42
206	Covington substation additions	273,000	149,000	76,000	48,000						
209	Olympia-Aberdeen No. 2	1,195,000					100,000		100,000	1,095,000	BP43
211	Shelton-Kitsap-Bremerton No. 2	1,147,000	700,000	342,000	105,000						
215	Lewis County service	1,750,000	109,000		93,000	1,033,000			1,033,000	515,000	BP44
216	Chehalis substation additions	377,000	331,000	33,000	13,000						
218	Ilwaco-Long Beach area service	753,000	47,000	90,000	342,000	274,000			274,000		BP45
219	Raymond-Aberdeen	1,145,000	1,045,000	54,000	6,000					40,000	
222	Okanogan County	371,000	123,000	99,000	116,000	33,000			33,000		BP45
223	Moses Lake service	244,000					125,000		125,000	119,000	BP46
224	Columbia substation	1,392,000	1,379,000	2,000	11,000						
227	Frenchman Hills area service	546,000	9,000		103,000	200,000			200,000	234,000	BP48
229	Columbia-Ellensburg	801,000	665,000	108,000	28,000						
234	Quincy-Burke	239,000	34,000	17,000	67,000	121,000			121,000		BP48
239	Warden substation additions	100,000			70,000	3,000			3,000	27,000	BP49
299	Other transmission facilities	789,000	135,000	71,000	305,000	35,000	200,000		235,000	43,000	BP49
	Subtotal	13,766,000	4,790,000	884,000	1,307,000	1,741,000	583,000		2,324,000	4,461,000	
300	Portland (southwest) area:										
301	North Bonneville substation additions	250,000	155,000	63,000	32,000						
303	Longview substation additions	812,000	326,000				368,000		368,000	118,000	BP54
304	Troutdale substation additions	203,000	126,000	17,000	16,000	44,000			44,000		BP55
305	J. D. Ross substation additions	926,000	698,000	175,000	53,000						
307, 308	Clark County and carborundum service	628,000	274,000	169,000	95,000	83,000			83,000	7,000	BP55
312	Longview area service	976,000	805,000	76,000	17,000	78,000			78,000		BP56
316	Alcoa substation circuit breaker replacements	89,000					89,000		89,000		BP57
318	Bethany-Forest Grove No. 2	333,000					133,000		133,000	200,000	BP57
325	Tillamook service	1,897,000	359,000	218,000	485,000	776,000			776,000	59,000	BP58
330	North Santiam Valley	383,000	267,000	83,000	33,000						
332	Toledo substation additions	170,000	141,000	1,000	24,000	4,000			4,000		BP59
334	Eugene-Reedsport area service	1,831,000	1,276,000	155,000	274,000	124,000			124,000	2,000	BP59
338	Middle Fork Willamette River projects	1,905,000	763,000	867,000	275,000						
339	Springfield substation additions	196,000	2,000		85,000	48,000			48,000	61,000	BP60
341	McKinley-Gold Beach	2,222,000	1,909,000	234,000	76,000	3,000			3,000		BP60
399	Other transmission facilities	1,241,000	126,000	175,000	446,000	122,000	301,000		423,000	71,000	BP60
	Subtotal	14,062,000	7,227,000	2,233,000	1,911,000	1,282,000	891,000		2,173,000	518,000	
600	Spokane area, upper portion (northeast area):										
621	Creston transformer replacement	37,000	22,000				15,000		15,000		BP67
622	Glenn H. Bell Substation additions	4,389,000	4,014,000	327,000	48,000						
629	Valley Way Substation additions	90,000	2,000		41,000	47,000			47,000		BP67
632	Albeni Falls loop	314,000	104,000	122,000	88,000						
636	Columbia Falls service	247,000	36,000	99,000	107,000	5,000			5,000		BP68
637	Kalispell Substation additions	173,000	3,000				86,000		86,000	84,000	BP68
699	Other transmission facilities	454,000	57,000	88,000	181,000	66,000	61,000		127,000	1,000	BP70
	Subtotal	5,704,000	4,238,000	636,000	465,000	118,000	162,000		280,000	85,000	

1956 construction program summary—Continued

Item No. and facility	Estimated cost	Obligations to June 30, 1953	Program fiscal year 1954	Program fiscal year 1955	Program fiscal year 1956				Balance to complete	Page reference
					Construction in progress	New construction	General plant	Total		
700 Spokane area, lower portion (southeast area):										
701 Midway substation additions	$2,033,000	$1,452,000	$359,000	$211,000	$11,000			$11,000		BP72
702 Grandview substation additions	275,000	48,000	10,000	76,000	138,000			138,000	$3,000	BP72
703 Highlands transformer replacement	100,000					$70,000		70,000	30,000	BP72
705 Benton County service	224,000	97,000	31,000	66,000	30,000			30,000		PB73
709 Franklin County	854,000	655,000	118,000	81,000						
710 Franklin transformer replacement	143,000	8,000		74,000	43,000			43,000	18,000	BP73
715 Ringold transformer replacement	103,000					70,000		70,000	33,000	BP74
716 Goldendale substation additions	154,000	34,000			41,000			41,000	79,000	BP75
799 Other transmission facilities	853,000	339,000	82,000	238,000	42,000	150,000		192,000	2,000	BP75
Subtotal	4,739,000	2,633,000	600,000	746,000	305,000	290,000		595,000	165,000	
800 General system facilities:										
810 General structures and improvements	1,447,000	172,000	274,000	704,000	131,000	120,000		251,000	46,000	BP80
820 Communication facilities	3,391,000	1,092,000	275,000	1,140,000	433,000	122,000		555,000	329,000	BP85
830 Tools and equipment	2,152,000		862,000	790,000			$500,000	500,000		BP88
840 Preliminary engineering studies	158,000		51,000	57,000		50,000		50,000		BP94
850 Portland operations facilities	1,450,000	448,000	681,000	229,000	92,000			92,000		
860 Portable emergency transformers	319,000			267,000	52,000			82,000		BP95
870 Escalation	150,000			150,000						
Subtotal	9,067,000	1,712,000	2,143,000	3,337,000	708,000	292,000	500,000	1,500,000	375,000	
Fiscal year 1954 obligations chargeable to items not in the 1955 or 1956 programs	1,101,000		1,101,000							
Reimbursable work for other accounts	367,000		167,000	100,000	100,000			100,000		
Subtotal	259,009,000	136,177,000	34,261,000	29,247,000	19,956,000	6,181,000	500,000	26,637,000	32,687,000	
Less comparative transfer to "Salaries and expenses, Office of the Solicitor, Interior"	(109,000)		(109,000)							
Grand total	258,900,000	136,177,000	34,152,000	29,247,000	19,956,000	6,181,000	500,000	26,637,000	32,687,000	

Funds available:										
Appropriation or estimate			38,866,000	24,314,000	9,843,000	6,181,000	432,000	16,456,000		

Funds available:										
Appropriation or estimate			38,866,000	24,314,000	9,843,000	6,181,000	432,000	16,456,000		
Funds carried over from prior years			9,979,000	14,857,000	10,013,000			10,013,000		
Proceeds from sales of personal property			105,000	109,000			68,000	68,000		
Reimbursements from other accounts			167,000	100,000	100,000			100,000		
Total funds available			49,118,000	39,380,000	19,956,000	6,181,000	500,000	26,637,000		
Less:										
Unobligated balance carried forward			14,857,000	10,013,000						
Transfer to Office of the Solicitor			109,000	120,000						
Total program			34,152,000	29,247,000	19,956,000	6,181,000	500,000	26,637,000		

Regional peak requirements from Bonneville Power Administration at time of maximum demand of year, kilowatts

[Based on median-year water conditions]

	Winter 1954–55			Winter 1958–59			Increased requirements from BPA
	Regional[1] deliveries	Non-Federal[2] generation	Required from BPA	Regional[1] deliveries	Non-Federal[2] generation	Required from BPA	
Puget Sound	1,801,000	1,067,000	734,000	2,366,000	1,124,000	1,242,000	508,000
Portland-Longview	1,626,000	361,000	1,265,000	1,991,000	361,000	1,630,000	365,000
Southwest Oregon	294,000	41,000	253,000	403,000	----------	403,000	150,000
Spokane	912,000	449,000	463,000	962,000	369,000	593,000	130,000
Central Washington and central and eastern Oregon	671,000	21,000	650,000	1,195,000	21,000	1,174,000	524,000
Western Montana	670,000	538,000	132,000	737,000	478,000	259,000	127,000
Subtotal	5,974,000	2,477,000	3,497,000	7,654,000	2,353,000	5,301,000	1,804,000
Main grid losses not included in area requirements	----------	----------	134,000	----------	----------	178,000	44,000
Peak generation	----------	----------	3,631,000	----------	----------	5,479,000	1,848,000

[1] Includes loads and area losses less diversity.
[2] All steam replaced except spinning reserves, Puget Sound Power & Light Co., Shuffleton plant, and 60,000 kilowatts in Montana. Includes 41,000 kilowatts California-Oregon Power Co., Toketee generation temporarily connected to Bonneville Power Administration system.
[3] All steam replaced except spinning reserves.

Mr. EVINS. The Bonneville Power Administration is requesting $16,456,000 for construction for 1956, a reduction of $7,858,000.

Referring to the amount of $6,181,000 for new construction, Dr. Pearl, will you identify the projects concerned in this item, and give us a brief explanation of each.

Dr. PEARL. Mr. Starr has the detail on those projects, and I am going to ask him to cover those items.

NEW CONSTRUCTION PROJECTS

Mr. STARR. The first one is an addition to the major grid item, No. 108, Chief Joseph-Snohomish No. 3 and Chief Joseph-Covington No. 1, namely, the addition of series compensation in the Chief Joseph-Covington line. I would like to use this map for a moment.

Chief Joseph-Covington is the line coming out here down to Covington [indicating].

Chief Joseph-Snohomish runs from Chief Joseph Dam over to Snohomish. Both of those lines are under construction at the present time. They both are constructed for 345 kilovolt operation, and we will transmit from Chief Joseph into the Puget Sound area.

The series compensation items have application at the Sultan Station to force a greater amount of power over the circuit into Covington rather than into Snohomish [indicating].

The next is No. 116, The Dalles Area Service, to which item are to be added The Dalles powerhouse-switchyard lines.

We have lines to construct from the powerplant itself up to the Big Eddy switchyard, which is located on a bluff here [indicating] above the dam. That is of course, a major substation.

No. 113, the Snohomish substation additions, at this location, the terminal of one of these high capacity lines, will provide an additional 150,000 kilovolt-amperes transformer to step down from the high voltage level the power coming in here [indicating Snohomish].

No. 126, the Big Eddy-Bethany line, is this red line you see down here [indicating].

That is an item of new construction that is required to transmit power from The Dalles project into the Portland area, and we are moving a large block of power over that circuit to Portland and delivering it at a new substation, the Bethany substation.

No. 134 is the Alvey-Reston 230-kilovolt line. That is the red line shown here [indicating], from the Alvey substation, which is a large substation at the southern end of our system, going down into southwest Oregon [indicating].

The Alvey-Reston line will be constructed for 230 kilovolts, and will operate initially at 115 kilovolts.

No. 137 is the McNary-La Grande project. Proposed additions are the Roundup substation circuit breakers and provisions at the La Grande substation for the Idaho Power Co. interconnection.

Mr. JENSEN. Does that last line take power down to the Coos Bay area?

Mr. STARR. There is one under construction now from here [indicating Reston] into the McKinley substation.

Mr. JENSEN. That line is under construction?

Mr. STARR. Yes, that line is under construction at the present time at 230 kilovolt so that we will ultimately have 230 kilovolts from the Alvey station, the major transmission station, via Reston into McKinley, which is the major transmission substation in the extreme southwest area, and from there we will transmit along the coast at 115 kilovolts.

Mr. JENSEN. You are building a 230-kilovolt line there in the Coos Bay area instead of the additional two 115-kilovolt lines which you originally planned?

Mr. STARR. That is right, as approved last year; yes, sir.

Mr. JENSEN. And by so doing you do not have to buy additional rights-of-way?

Mr. STARR. That is right.

Mr. JENSEN. It saved close to $1 million, as I understand.

Mr. STARR. On the order of $800,000.

Mr. JENSEN. On the order of $800,000?

Mr. STARR. Yes, sir.

The next is in the McNary-La Grande section. We have at the present time a 230-kilovolt line from McNary Dam through a station near the city of Pendleton [indicating the Roundup substation] and on to La Grande, and we are now connecting it with the Idaho Power Co.

At these points [indicating Roundup and La Grande substations] we require circuit breakers.

No. 143 is the Spokane area service and the new component is the Bell substation additions, 13-kilovolt bus sectionalizing. That is here [indicating].

Simply because of the increased load we need a 13-kilovolt bus sectionalizing switch. That means that in order to render the quality of service that we should be able to render at magnitudes of that order we must be able to sectionalize our buses.

No. 205 is the Snohomish substation terminal, for Snohomish County PUD. That is in the northwest area, and would be up in here [indicating]. The Snohomish substation terminal is here [indicating].

The next is 209, Olympia-Aberdeen No. 2. That is a second 115-kilovolt line constructed from Olympia out to Aberdeen to take care of the increase in loads out here [indicating the Grays Harbor area], or, rather, to reinforce the present loop which is rather weak.

No. 223 is Moses Lake service, comprising the proposed Pelican Horn substation and metering. That is in this Columbia Basin irrigation area, and the loads out there have grown fantastically because of the development in irrigation in this area, and we have been requested to increase our capability for delivering power in this area.

It was not possible to expand the present Moses Lake substation further because of physical space limitations, and we are requesting to move across town, or across the city, to establish a new substation for increasing the supply to that area, and the high-voltage transfer between the two stations will be over the Washington Water Power lines at the present time.

Then under No. 299, "Other transmission facilities," we have some new items, Port Angeles substation additions for a city of Port Angeles connection, Columbia oscillographs, circuit breaker bypass switches at four substations and some other small items.

THE DALLES SERVICE AREA

Mr. EVINS. What is the situation with reference to furnishing service to the Harvey Aluminum Co. in The Dalles service area?

Mr. STARR. We are in a position to go ahead with that if the request for power comes.

Mr. EVINS. The construction of this transmission line, I understand has been a controversial question for several years. I note that there is not anything in the budget for this project this year.

Mr. STARR. We do not have funds for it in the estimates.

Mr. EVINS. Has the controversy been adjusted or resolved?

Dr. PEARL. We can build our services as fast as they can build the plant. If they were to start the plant we would apply for a supplemental budget, and we could build our facilities in time to take care of their need.

BIG EDDY-BETHANY LINE

Mr. EVINS. The Bonneville Power Administration is requesting $100,000 for survey and advance planning on the Big Eddy-Bethany line, which is estimated to cost $8,404,000. What is the need for this line and what areas are to be served by it?

Mr. STARR. The Big Eddy-Bethany line will go from the Dalles Dam into Portland, the area on the western side of Portland. That will be of major capacity, 600,000 kilowatts.

Mr. EVINS. You have determined, I judge, that the existing line facilities are not adequate to carry the load required?

Mr. STARR. They are by far insufficient for that. The reason that we must get going on it is because a part of this is across mountainous area where we can work only in summer both for construction and surveys.

TOKETEE PLANT

Mr. EVINS. What are the plans of the California-Oregon Power Co. for use of the Tokette plant?

Mr. STARR. That does not show down here, but the Tokette plants are on the North Umpqua River about here [indicating].

At the present time we have an agreement with the California-Oregon Power Co. to put 40,000 kilowatts of the Tokette generation through their substation located right here [indicating the Roseburg area] into our system, into this line to the McKinley substation to assist in carrying these loads here [indicating the Coos Bay and southern coastal areas].

This is necessary because of the loadings on the present circuits, which are very old in this region, and are in excess of the loads which the lines can carry.

We have a working agreement with them now, and, as a matter of fact, it has been in effect for some time.

Mr. EVINS. Is it a firm agreement?

Mr. CALLARD. Our trouble is this, that until this substation and line is completed we are going to have a difficult period for 3 months next year and 4 months the following year.

We have an exchange agreement with Copco for the transfer of power, so there are no new agreements involved, but we expect to have them help us out during that period.

Mr. EVINS. Are you operating on a month-to-month basis, a year-to-year basis, or what?

Mr. CALLARD. We are transferring power to them at all times. We set up an agreement for Nickle Mountain and Yamsay.

Mr. EVINS. You feel that there is no danger of the power company pulling out if there is a deficiency of power in the area?

Mr. CALLARD. Not under this agreement we have with them. Under this agreement with the California-Oregon Power Co. we have turned the load over to them for a period of time, 1 month or 2 months in an emergency, but they do not want to open the switches every night.

Mr. EVINS. Suppose you had commitments to supply certain amounts of power to the people in that area and you did not have a long-term firm agreement with the California-Oregon Power Co., and they had other commitments elsewhere, and decided to supply their customers, you would be in a bad situation, would you not?

Mr. CALLARD. In their exchange agreement with us, which was signed, I believe, about a year and a half ago, they agreed to take care of up to 100,000 kilowatts of our requirements.

Mr. EVINS. For how long a period of time?

Mr. CALLARD. It is a 20-year contract.

Mr. EVINS. That is a firm contract for 20 years?

Mr. CALLARD. Yes, to take care of up to 100,000 kilowatts.

Mr. EVINS. Then you do have a firm contract for 20 years?

Mr. CALLARD. Yes, sir, for that amount.

PORTLAND (SOUTHWEST) AREA

Mr. STARR. The "300" series of items apply to the Portland (Southwest) area.

Item No. 303 includes the Longview substation additions, a second 50,000 kilovolt-ampere, 230–69 kilovolt transformer. Longview is right here [indicating].

That is to reinforce the existing transformer capability in that area, which is continuing to be inadequate.

Item No. 316: then there is a substation circuit breaker replacement at Alcoa substation, because of the inadequate performance of the existing equipment which is there.

Item No. 318 covers Bethany-Forest Grove No. 2, a 115-kilovolt line. That is this red line right here. That is to reinforce the supply from this new Bethany station to the Forest Grove station.

There are other small items in the Portland area which are included in item No. 399, such as relocation of facilities at the Chemawa substation in here [indicating] and installation of transformer cooling fans at several points.

SPOKANE AREA—UPPER PORTION

"600" items cover the Spokane area, the upper portion, which is over in here [indicating]. There is a small transformer replacement required there [indicating the Creston substation], item No. 621.

Also there is item No. 637, the Kalispell substation, where an additional 15,000-kilovolt ampere transformer is required to meet the load in the area, and there are also some other small items covered under item No. 699.

SPOKANE AREA—LOWER PORTION

"700" items cover the lower portion of the Spokane area in here [indicating]. At Highlands there is a transformer replacement, item No. 703. There is a transformer replacement also at Ringold, item No. 715. They are to reinforce our customer service facilities.

Item No. 799, "Other transmission facilities," covers the Dayton substation additions, a second 1,500-kilovolt ampere transformer; at Gilmer there is a transformer replacement; and on the Benton-Richland line there is a relocation.

GENERAL SYSTEM FACILITIES

"800" items cover general system facilities.

"810" items cover general structures and improvements.

These are items such as the northeast area maintenance headquarters, a warehouse at East Vancouver for maintenance spare parts, Chief Joseph maintenance headquarters for this new dam, and headquarters for maintenance crews at Covington. That is down here [indicating]. Also street improvements are proposed at Midway.

The Ross High Voltage Laboratory and plumbers and riggers shop are also included under item No. 810. The former is a plumbers and riggers shop we would like to build at the Ross substation to house some of the equipment which we are now using for high voltage and other tests which is scattered all around in various old warehouses. That will be a cheap building, built with cheap material, to make it possible to put this equipment in a central place.

COMMUNICATION FACILITIES

"820" items cover communication facilities.

Under this there are a number of supervisory control and other items of equipment to make it possible to operate an unmanned

station from a remote point, thereby saving the cost of personnel. In this group there is included:

Supervisory control at Santiam, Oregon City, Chemawa, and Redmond substations.

Telephone terminal and telemetering equipment at Salem and Bell substations.

VHF land radio stations at Bend and Crescent Butte, Oreg.

PRELIMINARY ENGINEERING STUDIES

Then, the last item, 840, covers preliminary engineering studies.

This is quite an important item, we feel, in keeping our plans up to the moment.

We have right now going on a cooperative study with the Pacific Northwest power group and with the other utilities in the area, in which we are projecting plans into the future in order to see what would be the most feasible transmission scheme for various future alternatives, so that the facilities which we do construct will be useful in the future, and not become useless as time goes on.

TOTAL REQUEST FOR NEW CONSTRUCTION

Mr. EVINS. You are requesting a total of $6,181,000 for new construction during the next fiscal year.

Mr. STARR. That is the total for new starts, I believe.

Dr. PEARL. That is right.

Mr. STARR. Those are strictly new starts. Those things are not continuations of previously approved items.

Mr. EVINS. Thank you, Mr. Starr.

Dr. PEARL. Could I make a statement at this time, Mr. Chairman?

Mr. EVINS. You may, Doctor.

REPROGRAMING

Dr. PEARL. You asked me about the approval of our program by customers and utilities in the area. Since we presented our budget to the Bureau of the Budget unpredictable developments have occurred that may necessitate a change in the programing of some facilities. These are being analyzed and will be presented to the Congress as early as a decision can be reached.

Mr. Starr told you about two points where the growth in the power requirement has been fantastic. Now, that has taken place in the last few months, in other words, since our presentation, so that if I were to learn that someone suggested to you that we should accelerate some of these facilities, you will know that these changes occurred since we had our former agreement, and I would like to be able to come in with a supplemental request.

Mr. EVINS. I think this committee is going to keep the door open for the Bonneville Power Administration to come in for any reprograming that might be justified.

Dr. PEARL. Thank you very much, sir.

EXPENDITURES FOR POWER IN THE BONNEVILLE AREA

Mr. JENSEN. I wonder, Doctor, if you could give us a pretty full estimate of the amount of money that is being spent for power producing and transmission facilities by private utilities, municipalities and public-utility districts in addition to the money that Congress has spent for Bonneville to take care of this whole problem out there. I understand that you are all in the pool, and that you work together to help each other to keep everybody well supplied with power the best you can.

Dr. PEARL. We are aware of this, having been asked that question before. I can tell you, sir, that we are in the process of collecting that data, and we shall be glad to submit it as soon as it is complete.

Mr. JENSEN. Yes, supply it for the record.

(The matter referred to is as follows:)

According to data being compiled by the Pacific Northwest Utilities Conference Committee, non-Federal utility systems in the Northwest (Oregon, Washington, Idaho and Montana west of the Continental Divide) have made investments for electrical service in the approximate amount of $605 million for the calendar years 1950 through 1954, inclusive. During the years from 1955 through 1959, it is estimated that these systems will expend $1,750 million for transmission, distribution, and new generating projects. Thus, over a 10-year period, non-Federal expenditures for electrical service in the Northwest may exceed $2 billion. We understand that the conference committee representatives plan to present more detailed data on this matter to the Appropriations Subcommittee at their scheduled appearance.

CONTRACTING FOR DESIGN WORK

Mr. JENSEN. Just one more thing comes to my mind.

As I remember it, last year the Interior Department Subcommittee was a little bit concerned about the Bonneville Power Administration hiring outside design engineers, instead of using their own engineers. We thought that possibly it was not necessary for you to hire as many outside design engineers as had been the case in the past. What is the situation on that, Doctor?

Dr. PEARL. For consultants, of course, we have money that we have expended.

We are at present contracting some design work.

We found that our load to meet our program was more than we could handle this year, and so we are contracting some design work.

Mr. JENSEN. As much as had been the custom in the past?

Dr. PEARL. No; I do not believe in the past they have done contracting of design work. In the past it has been by way of consulting.

Mr. JENSEN. It was outside help.

Dr. PEARL. Yes, it was outside help.

Mr. JENSEN. Regardless of what kind it was, it was using appropriated funds for hiring private engineers or consultants, or what have you, that the committee felt had been carried on to extremes, as I remember it.

Dr. PEARL. Perhaps Mr. Ostrander has those figures. It would be necessary for me to look that up as far as the past number is concerned.

Mr. JENSEN. Well, the main purpose of my questioning on this matter is because of the concern of the subcommittee on the Department of the Interior last year, which took a little look-see into this thing. We felt that it had been carried on to too great a degree.

My purpose in bringing it up is because I hope it will not be carried on to any greater degree than is absolutely necessary for good designing, good administration, and good construction.

INSTALLATION OF TRANSFORMERS

Mr. HAND. In connection with the various substations being constructed and operated by Bonneville, does the Administration follow a schedule of installing comparatively large banks of transformers, whose maximum capacity may not be needed for a considerable number of years in the future, or do you plan in accordance with the capacity needs in the next few years?

Dr. PEARL. That is a matter of opinion of the engineers as to how far you should go in taking care of the future.

I could ask Mr. Starr to give you a statement of his overall policy. Any way you look at that somebody would disagree with you.

Do you want to make a general statement on that, Mr. Starr?

Mr. STARR. Yes, sir; I would like to.

In the case of a decision to install a definite amount of substation capacity, we are required, of course, to look into the future and predict the load that may occur in that area within a reasonable number of years, and then attempt to arrive at an installation which will have the minimum overall cost in the end. In other words, we like to get the maximum worth out of the thing.

Mr. HAND. I think the crux of the point is, really, what your policy is with respect to defining the reasonable number of years you have to look into the future.

Mr. STARR. Heretofore I do not think we have had anything that would be continuing beyond 10 years.

Mr. HAND. Beyond 10 years?

Mr. STARR. I do not think we have had anything that would continue beyond 10 years.

Mr. HAND. Is it safe to say 10 years in the future?

Mr. STARR. And some of them are as low as 5 years.

FUNDS FOR SURVEYS AND DESIGN IN SEATTLE AREA

Mr. EVINS. In the Seattle area the Bonneville Power Administration is requesting funds for surveys and design of facilities to cost about $2,486,000. I read from page 42 of the justifications:

"Engineering studies based on newly forecasted loads indicate that this facility may not be needed for several years."

My question is, If that is so why are you requesting funds at this time?

Mr. STARR. I think this is a customer service facility so that, perhaps, Mr. Callard would like to discuss that.

Mr. CALLARD. Last year three customers near Port Angeles gave us certain load estimates, and we put these facilities in the budget for 1955 based on these estimates. We took another look at it this year. It seems like now the Rayonier Co., and the Crown-Zellerbach Co. are not growing as fast as they thought they would. We do know that we will not ask for several million dollars for this budget, but we do want to get in our surveys and design and know what we have to do

moneywise, and that is why we are requesting $42,000. This well could come up next year.

Mr. EVINS. Do you think that the $2,486,000 could be deferred?

Mr. CALLARD. $42,000 is all that is in that item now, sir.

OLYMPIA-ABERDEEN NO. 2

Mr. EVINS. The Bonneville Power Administration is requesting funds for the initiation of construction of the second Olympia to Aberdeen line. You requested funds for this in the past, but you withdrew your request when the expected load growth did not materialize. What changes have occurred which necessitate a renewal of the request for funds for construction now?

Mr. STARR. I think that is due to the fact that some of the lines there, in rather bad areas, are older lines and in rather hazardous areas due to the heavily timbered area there, and the service in there needs to be improved considerably in magnitude and in quality as well.

LONGVIEW SUBSTATION ADDITIONS IN PORTLAND AREA

Mr. EVINS. Explain to the committee the need for the Longview substation in the Portland area.

Mr. STARR. The Longview substation is this one right here [indicating], and it supplies the Vowlitz County PUD. The PUD's loads are increasing beyond the capability of the present transformer.

TILLAMOOK SERVICE

Mr. EVINS. What would be the effect of the recent reprograming request presented to the committee on the Tillamook service? On the fiscal year 1956 request it is $776,000. You are reprograming this request?

Mr. STARR. That is this circuit down here [indicating], from Forest Grove to Timber and down into Tillamook, which would support the growth in requirements down there.

GENERAL SYSTEM FACILITIES

Mr. EVINS. On page 80 you are requesting funds for new starts on general system facilities.

Please give the committee the total cost of these new starts and the need for them at the present time. Can you supply that for the record?

Mr. STARR. Yes, sir, we can supply a brief statement on that for the record.

(The matter referred to is as follows:)

For fiscal year 1956, Bonneville Power Administration is requesting new items of the categories listed below:

Fiscal year 1956 new starts, general system facilities

No.	Item	Total cost	1956 request
810	General structures and improvements	$166,000	$120,000
820	Communications facilities	272,000	122,000
840	Preliminary engineering studies	50,000	50,000

The need for these is briefly summarized as follows:

GENERAL STRUCTURES AND IMPROVEMENTS

Northeast area maintenance headquarters building to house an eight-man maintenance crew, utilizing an existing Bureau of Reclamation building at Grand Coulee: $15,000 is required in fiscal year 1956, the total cost, to convert the structure to a suitable maintenance building.

East Vancouver warehouse maintenance spare parts storage requiring the remodeling of a portion of a presently leased building at a cost of $17,000, of which $14,000 is required in fiscal year 1956, to provide a continuously supervised central spare parts storage to protect an investment of $500,000 in replacement parts.

Chief Joseph maintenance headquarters requiring a new building at the Chief Joseph switchyard at a cost of $46,000, of which $43,000 is required in fiscal year 1956, to house substation and communication maintenance activities at the new important center.

Covington maintenance headquarters for shop and storage space to maintain relay and communication facilities in this district involving a total expenditure of $19,000, all of which is required in fiscal year 1956.

Midway street improvements requiring an expenditure of $9,000, of which $8,000 is required in fiscal year 1956, to gravel and oil the streets in the residential area of the isolated Midway substation where housing has been provided for substation operators and maintenance personnel and their families.

Ross high-voltage laboratory involves the erection of a prefabricated steel building with facilities at a cost of $49,000, of which $10,000 is required in fiscal year 1956, to provide proper clearances, fire protection, etc., of existing laboratory equipment scattered through several inadequate buildings at Ross.

Ross plumbers and riggers shop provides at an expense of $11,000, all of which is required in fiscal year 1956, a building with 1,800 square feet to house this activity now utilizing 2 temporary wooden buildings which have deteriorated to the point where continuous and expensive maintenance is required.

COMMUNICATIONS FACILITIES

Supervisory control facilities are required to substitute central dispatching for individual manning at several substations, with a resulting saving in the number of operators needed. Total cost of the facilities is $100,000, of which $50,000 is required in fiscal year 1956.

Telephone terminal and telemetering equipment is proposed for Salem substation to handle the increasing traffic, and various telemetering installations must be made to permit system control. Total cost is $72,000 of which $41,000 is required in fiscal year 1956.

VHF land radio stations, requiring $100,000 in total and $31,000 in fiscal year 1956, are needed for communications to maintenance crews.

PRELIMINARY ENGINEERING STUDIES

$50,000 is required in fiscal year 1956 for performing engineering investigations in advance of, and to obtain the data for requesting, specific appropriations for new transmission facilities.

POOLING OF VEHICLES

Mr. EVINS. On page 88 you are requesting $500,000 for tools and equipment, including the replacement of vehicles. You state in your justification:

Other Interior agencies are making increased demands on the Administration's vehicles because of car shortages or because vehicles can be obtained from the Administration at less cost than their own vehicles can be operated, or for both reasons.

Is it a function of the Bonneville Power Administration to provide transportation facilities for other Interior Department agencies?

Dr. PEARL. The physical facts are these: During the last year all of the agencies of the Department of the Interior were housed in one

building. We have one common garage for all of them. We have a setup administratively to serve all of the agencies. The one we have set up now is a car pool which will serve all of the agencies, and so far they have a joint pool with one exception. We think that will be an overall saving.

Mr. EVINS. Are you being reimbursed for providing motor pool service for other agencies?

Dr. PEARL. We will be.

Mr. EVINS. You are pooling things pretty well out your way all along.

Dr. PEARL. As far as the Department of the Interior is concerned we have pooled many of the activities. We are all in one building now. That way it works out advantageously to everyone concerned.

May I just add one statement, which is that it is the Portland area that I am talking about, the Department of the Interior in the Portland area, I should put in, because some of the agencies have their headquarters elsewhere than in Portland.

COMPARISON OF CONSTRUCTION COSTS OF BONNEVILLE AND OTHER UTILITIES

Mr. HAND. How do your construction costs generally compare with the construction costs of other utilities, either public or privately owned utilities?

Dr. PEARL. I think we would have to say that they are very favorable compared to them.

I was interested yesterday in the figures of the Army Engineers when they told you how their bids came in, and our range is about the same as theirs. They are relatively close, except where we get these exceedingly high ones. Our construction costs have been decreasing for a number of years primarily because of the decreasing construction, which means that contractors are more anxious to get jobs, so they have been decreasing for a number of years.

Mr. HAND. Has your Administration made any study of the comparison of your cost with the cost of large privately owned utilities?

Dr. PEARL. I will ask Eugene Starr if you have made any such studies.

Mr. STARR. We have made several spot checks, sir, of those items. In some spots we are lower than the privately owned utilities, and in some spots we are higher.

Mr. HAND. What is the general picture? Would you say it is about the same?

Mr. STARR. Yes, it is very close to the same. I might be able to go into detail a little further there. In our line construction, steel tower line construction, we do not use overhead ground wires as private utilities do, and we are ordinarily not quite so vulnerable to lightning, and we have a more complete network. I would say, therefore, that we would no suffer quite so badly from the loss of a single circuit.

Also, our real estate costs are, in general, perhaps lower than in many areas where private utility companies operate. So, I would say, in general, that our construction costs compare quite favorably to theirs.

Mr. HAND. Would that same answer apply to your general operating and maintenance costs?

Mr. STARR. I believe that Mr. Callard can answer that question, sir.

Mr. CALLARD. On operating and maintenance we try to check very carefully. We go over it with our local utilities and other large companies such as the Pacific Gas & Electric Co. which has a comparable system, and with the Southern California Edison Co.

We find that on the question of substations we are decidedly on the low side, and on dispatching we are slightly on the high side. We have a more concentrated dispatching system than they have. I have letters from the utility people and they feel that we are consistent with their practices.

We have one problem that is very hard to coordinate with that of any other utility because we are wholesalers of power, and we have nothing but high-voltage transmission, and it is very hard to break down other people's costs and compare them with ours because they use the same crews to handle their distribution and transmission maintenance.

Answering your question, I think that they are comparable.

OPERATION AND MAINTENANCE

Amounts available for obligation

(Balances for Jun 30, 1954, are as certified under sec. 1311, Public Law 663)

	1954 actual	1955 estimate	1956 estimate
Appropriation or estimate	$6,004,000	$6,200,000	$6,650,000
Transferred to "Salaries and expenses, Office of the Solicitor, Interior," pursuant to Public Law 465		−57,385	
Adjusted appropriation or estimate	6,004,000	6,142,615	6,650,000
Unobligated balance, estimated savings	−65,391		
Obligations incurred	5,938,609	6,142,615	6,650,000
Comparative transfer to "Salaries and expenses, Office of the Solicitor, Interior"	−56,121		
Total obligations	5,882,488	6,142,615	6,650,000

Obligations by activities

Description	1954 actual	1955 estimate	1956 estimate
1. System operation and maintenance	$5,009,702	$5,296,115	$5,816,000
2. Power contracts and rates	261,980	252,500	229,000
3. General administration	610,806	594,000	605,000
Total obligations	5,882,488	6,142,615	6,650,000

Obligations by objects

Object classification	1954 actual	1955 estimate	1956 estimate
Total number of permanent positions	860	844	889
Full-time equivalent of all other positions	25	15	1
Average number of all employees	812	804	865
Number of employees at end of year	861	860	896
Average salaries and grades:			
General schedule grades:			
Average salary	$4,948	$5,117	$5,226
Average grade	GS–7.5	GS–7.7	GS–7.7
Ungraded positions: Average salary	$5,297	$5,357	$5,354
01 Personal services:			
Permanent positions	$4,262,374	$4,435,700	$4,843,200
Positions other than permanent	114,700	71,000	6,800
Regular pay in excess of 52-week base	13,700	14,300	16,300
Payment above basic rates	146,690	121,900	167,900
Excess of annual leave taken over leave earned	−9,376		
Total personal services	4,528,088	4,642,900	5,034,200
02 Travel	148,716	166,700	192,700
03 Transportation of things	17,453	25,300	28,200
04 Communication services	135,977	172,700	161,000
05 Rents and utility services	69,748	70,600	78,400
06 Printing and reproduction	2,777	1,700	1,800
07 Other contractual services	219,387	245,600	222,400
Services performed by other accounts	454,601	498,000	570,400
08 Supplies and materials	282,772	287,800	352,600
11 Grants, subsidies, and contributions	17,020	31,000	8,000
13 Refunds, awards, and indemnities	5,949	315	300
Total obligations	5,882,488	6,142,615	6,650,000

Analysis of expenditures

(Balances for June 30, 1954, are as certified under sec. 1311, Public Law 663)

	1954 actual	1955 estimate	1956 estimate
Obligated balance brought forward	$131,795	$84,552	$77,167
Adjustment in obligations of prior years	22,630		
Obligations incurred during the year	5,938,609	6,142,615	6,650,000
	6,093,034	6,227,167	6,727,167
Obligated balance carried forward	−84,552	−77,167	−77,167
Total expenditures	6,008,482	6,150,000	6,650,000
Expenditures are distributed as follows:			
Out of current authorizations	5,874,159	6,083,000	6,590,000
Out of prior authorizations	134,323	67,000	60,000

Mr. EVINS. For operation and maintenance the Bonneville Power Administration is requesting $6,650,000 for next year. I believe Dr. Pearl did earlier detail much of the need and justification of the increase.

Mr. Reporter, insert in the record at this point pages 99, 100, and 101 of the justifications.

(The matter referred to is as follows:)

Bonneville Power Administration

Operation and maintenance

Appropriation act, 1955		$6,200,000
Transferred to "Salaries and expenses, Office of the Solicitor, Interior"		−57,385
Adjusted appropriation		6,142,615
Decreases:		
System operation and maintenance	$15,800	
Power contracts and rates	31,800	
General administration	8,800	
		56,400
Subtotal		6,086,215
Increases:		
System operation and maintenance	$535,685	
Power contracts and rates	8,300	
General administration	19,800	
		563,785
Budget estimate, 1956		6,650,000

Analysis by activities

Activities [1]	Adjusted appropriation	Decreases	Subtotal	Estimate, 1956	Increases	Page reference	
						Table	Justification
1. System operation and maintenance	$5,296,115	$15,800	$5,280,315	$5,816,000	$535,685	BP102	BP102
2. Power contracts and rates	252,500	31,800	220,700	229,000	8,300	BP116	BP116
3. General administration	594,000	8,800	585,200	605,000	19,800	BP118	BP118
Total	6,142,615	56,400	6,086,215	6,650,000	563,785		

[1] The activity categories are different from those used in previous years. Pursuant to recommendations made by members of the House and Senate subcommittees on Interior appropriations, that the nomenclature of activities be changed to more clearly reflect the actual types of work performed, the revised activity schedule shown was prepared by the Department of the Interior and approved by the Bureau of the Budget for use by power marketing agencies.

OPERATION AND MAINTENANCE PROGRAM JUSTIFICATION

For fiscal year 1956, the estimates of the Bonneville Power Administration for operation and maintenance of the transmission system, power contracts, rates and general administration activities total $6,650,000, an increase of $507,385 over the program for fiscal year 1955. The estimates will provide for maintenance of existing and new facilities at a minimum level required for continued safe operation and prevention of excessive and costly deterioration, and for effective management of the system.

The following table summarizes basic program data underlying operation and maintenance program workloads:

	Actual, fiscal year 1954	Estimated, fiscal year 1955	Estimated, fiscal year 1956
Revenues [1]	$45,216,652	$52,832,000	$61,473,000
Average electric plant in service	$267,497,000	$304,269,000	$344,565,000
Number of customers at end of year	114	117	118
Points of delivery at end of year	307	324	333
Sales of energy (millions of kilowatt-hours, median water assumed)	18,764	22,575	26,623

[1] The 1954 revenue figures are based on actual water conditions, and the 1955–56 figures are based on assumed median water conditions. These are revenues of the Bonneville Power Administration and do not include revenues collected directly at generating plants.

Mr. EVINS. Will you give us again, Doctor, a very brief statement on the operation and maintenance program, and why the increase requested is needed?

Dr. PEARL. As I indicated with our chart earlier, the physical plant growth will be more than our growth in O. and M., and there will be an increased cost of operating the plant as the physical plant grows.

GENERAL ADMINISTRATION

Mr. EVINS. You are requesting $605,000 for general administration for 1956, an increase of $11,000 over last year.

During the past year you completed a survey of the organization of the Bonneville Power Administration. What were the general recommendations in this survey, and how have they been implemented?

Dr. PEARL. The recommendations are, of course, that we curtail this activity, which we have done.

The $605,000 requested, which is a slight increase over last year, is due primarily to things over which we have no direct control, such as normal increases in salaries, and so forth. If you are interested in seeing the organizational chart, I can show you to what extent we have simplified and revised that.

Mr. EVINS. I believe the committee has that available.

Dr. PEARL. Yes, sir; I think they have.

CONTINUING FUND FOR EMERGENCY EXPENSES

Mr. EVINS. What is the present status of your continuing fund for emergency expenses?

Dr. PEARL. Are you referring to the funds here?

Mr. EVINS. The emergency fund.

Dr. PEARL. Mr. Ostrander can explain that to you.

Mr. OSTRANDER. We have the full amount of that fund on hand, and I can give you the details on that, Mr. Chairman.

Mr. EVINS. How much are you holding in that emergency fund?

Mr. OSTRANDER. The entire $500,000.

Mr. EVINS. The entire $500,000?

Mr. OSTRANDER. Yes, sir.

Mr. EVINS. You are doing so well that you do not have to augment that fund. You are just holding it in reserve?

Mr. OSTRANDER. Whenever we have to expend money from it we can replenish it from revenues.

Mr. JENSEN. I do not think you have had any occasion to use any of that money for many years, have you?

Mr. OSTRANDER. We have used a small amount, yes, sir.

Mr. JENSEN. You have?

Mr. OSTRANDER. Yes, sir. We have expended a total of $956,707 in our entire history from that fund.

Mr. JENSEN. I knew that it was a small amount.

Mr. OSTRANDER. That is about one-third of 1 percent of our receipts, but there are times when it comes in very handy. We had an earthquake, for example, a few years ago that caused some trouble.

PERSONNEL BY DIVISIONS

Mr. EVINS. Furnish a tabulation for the record which will show personnel by divisions for the fiscal years 1954, 1955 and estimated for 1956.

(The tabulation requested is as follows:)

Personnel by divisions, Bonneville Power Administration

[Adjusted to present organization structure]

	Fiscal year 1954 [1]	Fiscal year 1955 [2]	Fiscal year 1956 [3]
Office of Administrator	29	16	17
Division of Engineering	1,047	624	623
Division of Operations and Maintenance	[4] 1,163	[4] 1,018	[4] 1,102
Division of Administrative Management	469	389	403
Total	[4] 2,708	[4] 2,047	[4] 2,145

[1] Data as of Dec. 31, 1953.
[2] Data as of Dec. 31, 1954: Authorized employment, 2,100.
[3] Estimate for Dec. 31, 1955.
[4] "Extra board" employees included.

CONSTRUCTION FORCE ACCOUNT WORK

Mr. EVINS. Furnish a tabulation of the amount of construction force account done annually for the past 4 years and the estimates for fiscal year 1956.

(The tabulation requested is as follows:)

Force account work, Bonneville Power Administration

Fiscal year:	*Amount*	Fiscal year:	*Amount*
1952	$2,776,274	1955 [1]	$1,760,000
1953	3,090,926	1956 [1]	1,640,000
1954	2,459,101		

[1] Estimated.

PERSONNEL ALLOCATED TO CONSTRUCTION AND OPERATION AND MAINTENANCE

Mr. EVINS. Insert a tabulation showing the personnel and personal service funds allocated to construction and to operation and maintenance annually for the past 4 years and the estimate for fiscal year 1956. In the same tabulations show the total volume of construction and operation and maintenance funds for each of these years.

(The tabulation requested is as follows:)

BONNEVILLE POWER ADMINISTRATION

Personal service and total programs, fiscal year 1952 through fiscal year 1956

	Operation and maintenance			Construction [1]		
	Man-years	Personal service funds	Total program	Man-years	Personal service funds	Total program
1952 budget program	841	$4,138,940	$5,528,439	2,364	$10,647,124	$49,443,806
1952 actual	811	4,129,815	5,500,352	2,282	10,790,688	49,032,060
1953 budget program	962	5,020,915	6,600,000	2,402	11,670,242	63,070,748
1953 actual	948	4,794,882	6,331,422	2,246	11,327,109	53,112,794
1954 budget program	827	4,575,600	6,004,000	2,112	10,667,850	47,919,572
1954 actual	812	4,528,088	5,882,488	1,930	9,578,040	34,151,498
1955 budget program	860	4,642,900	6,142,615	1,350	6,948,100	29,247,385
1956 budget program	895	5,034,200	6,650,000	1,247	6,433,800	26,637,000

[1] Includes reimbursable work for other agencies.

Mr. EVINS. Thank you very much, gentlemen, for a very able presentation.

Dr. PEARL. Thank you, Mr. Chairman and gentlemen of the committee.

FRIDAY, APRIL 22, 1955.

ALASKA, HAWAII, AND PUERTO RICO

WITNESSES

BUREAU OF RECLAMATION

S. W. CROSTHWAIT, ASSISTANT COMMISSIONER
D. S. CAMPBELL, CHIEF, POWER DIVISION
N. B. BENNETT, CHIEF, PROJECT DEVELOPMENT DIVISION
R. W. JENNINGS, REGIONAL DIRECTOR, REGION 5, AMARILLO, TEX.

CORPS OF ENGINEERS

COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL
COL. W. F. POWERS, CHIEF, OPERATIONS DIVISION, CIVIL WORKS
B. J. TOFANI, CHIEF, PROGRAMS DEVELOPMENT BRANCH, CIVIL WORKS
HARRY COHEN, ASSISTANT CHIEF, PROGRAMS DEVELOPMENT BRANCH, CIVIL WORKS
C. M. CONWAY, PROJECTS DEVELOPMENT BRANCH, CIVIL WORKS

Alaska, Hawaii, Puerto Rico

Appropriation	Corps of Engineers	Interior-Reclamation
General investigations	$34,200	$150,000
Advance engineering and design	35,000	
Construction		
Operation and maintenance	1,232,000	234,000
Total	1,301,200	384,000

BUREAU OF RECLAMATION

CONSTRUCTION AND REHABILITATION

Actual unobligated balances June 30, 1954, and Mar. 31, 1955, and estimated June 30, 1955

ALASKA

Project	Actual unobligated balance June 30, 1954	Actual unobligated balance Mar. 31, 1955	Estimated unobligated balance, June 30, 1955—Field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Eklutna, Alaska	$4,800	$265,339	$150,000	$50,000	$200,000
Total, Alaska	4,800	265,339	150,000	50,000	200,000

Mr. EVINS. The committee will consider this afternoon the appropriation requests for Hawaii, Alaska, and Puerto Rico.

Mr. Bennett, will you give the general statement.

GENERAL STATEMENT, ALASKA

Mr. BENNETT. The Territory of Alaska comprises an area of 586,400 square miles, which is equal to about one-fifth of the area of continental United States. It extends northward between the 55th and 72d parallels of latitude and westerly between the 130th and 180th meridians. Its island and mainland coastline is some 30,000 to 35,000 miles in length fronting on the Pacific Ocean, the Gulf of Alaska, Bering Sea, and the Arctic Ocean. The most important natural resources of the region are the fisheries, minerals, and furs, each of which produces values of many millions of dollars annually. In recent years the forest products industries have become of importance in southeastern Alaska.

The population of Alaska has steadily increased throughout the years of United States ownership with a sharp increase in the last decade. While this recent accelerated rate of increase cannot be expected to continue, it is anticipated that the continual migration of people to the Territory will steadily increase the population for some time to come with corresponding increased demand for navigation, flood control, power, and possibly irrigation.

Until recent years the Territory was entirely dependent upon waterborne shipping for all outside contacts and commercial movements. The construction of the Alaska Highway and the development of commercial air service has, to a limited extent, provided alternate routes for mail, passengers, and some merchandise, but the water routes still provide the principal lifeline of the Territory and in many areas are the only available avenues for communication and transportation. Ports, small-boat harbors, and harbors of refuge to meet the growing needs of deep-draft commerce; and the requirements of the numerous smaller craft which make up the fishing, transportation, and work-boat fleet will continue to be important in the water resource development in most of Alaska. River traffic on a few of the major rivers which penetrate the interior will continue for some time to be of importance to these inland areas. Flood control will

become of increasing importance at various locations in the Territory, particularly the lower reaches of some of the major streams, as the development and population density increases. Lack of sufficient power has been a major detriment to development of the Territory so that construction of hydroelectric projects is an essential need. Irrigation as a support for agriculture is being investigated.

NAVIGATION

The improvement of Alaska's navigable waters by the Corps of Engineers began with the authorization of the St. Michael Canal improvements in 1907 followed by the authorization of the Apoon mouth of the Yukon River in 1912. Both were for the improvement of navigation conditions for Yukon River traffic. Since that time authorizations have been made for improvements at 28 locations extending from Nome on the Bering Sea to Ketchikan near the southern extremity of the Territory.

The improvements originally authorized have been completed at 15 locations, but authorizations of modifications or additional improvements have reactivated 6 projects.

There are 19 authorized projects which have been partially constructed or upon which the work has not started.

Work on the deep-draft channel at Kodiak is being accomplished this year. Harbor facilities at Whittier are being provided for military purposes with military funds.

No navigation projects are proposed to be initiated during fiscal year 1956.

FLOOD CONTROL

The Corps of Engineers entered the flood-control activities in the Territory in 1937 with the reauthorization of the Lowell Creek project at Seward which had previously been assigned to the Alaska Road Commission. Since that time only four additional flood-control projects have been authorized and these are for local protection purposes only. The Bureau of Reclamation has no flood-control projects in Alaska.

Three projects, the Fairbanks, Tanana River, and Chena Slough project, Salmon River project at Hyder, and the Lowell Creek project at Seward, have been completed as authorized.

One project, Skagway River at Skagway, was completed as originally authorized, but additional work has been authorized and this work has not been started. One project, Gold Creek project near Juneau, has not been started.

There are no flood-control projects under construction at this time; however, planning funds for advance engineering and design work on the authorized Gold Creek project at Juneau are included in the fiscal year 1956 budget.

No new flood-control projects are scheduled to be initiated during fiscal year 1956.

IRRIGATION

The increase in population has created greater demand for all Alaskan-grown products. Experiments now nearing completion by the Territorial experiment station in cooperation with the Department

of Agriculture show that irrigation is a requirement in the Matanuska Valley and other agricultural areas for maximum crop production. Irrigation may prove to be an invaluable aid to the necessary agricultural development of the Territory.

The Bureau of Reclamation has conducted limited preliminary investigations in connection with possible developments in this field.

POWER

Federal development of hydroelectric powerplants in Alaska to date has been the responsibility of the Bureau of Reclamation. The Eklutna project, which now provides 30,000 kilowatts of power to serve the city of Anchorage and surrounding communities, will be completed by the end of the current fiscal year. The Bureau's program in fiscal year 1956 will consist of operation and maintenance of the Eklutna facilities and a program of continuing investigations of potential power projects.

With Alaska's population growth there are insufficient homes, schools, commercial establishments, public-utility services, and service industries. Electric services are limited, and many dwellers in the suburban rural areas are unable to obtain complete electric service. Until substantial blocks of energy are made available, most of Alaska will continue to suffer the inconvenience of relative curtailment in electric power supply. For the same reason, industrial expansion of the Territory is severely handicapped by the lack of electrical energy.

A vast waterpower potential exists in Alaska, conservatively estimated to be in excess of 46 billion kilowatt-hours annually. Development of this water power is essential in the future economic welfare of the country. Today factual information exists only for a few areas, and comprehensive studies are a prerequisite to the planning of its use. It is important that investigations be continued, since these investigations will contribute materially toward permanent settlement, encourage industrial development, and accelerate use and aid in the development of other Alaskan natural resources.

Several of the smaller potential developments on the Kenai Peninsula, and some near the larger towns in southeastern Alaska previously studied and reported on by the Corps of Engineers, are currently under study by private operators or local municipal organizations.

CONCLUSION

River and harbor and flood control projects for Alaska are planned and developed by the Corps of Engineers to satisfy the needs of growing deep-draft commerce and the requirements for the smaller boats used in the fishing industry and in the inland or island passage waterways. Power and irrigation in Alaska is planned by the Bureau of Reclamation. The general program is coordinated to conform to the changing needs and activities of the local residents as well as to further the development of a sound system for the benefit of the Territory as a whole. Studies of the water resources of Alaska are being made with a view to also providing plans for meeting the navigation, flood control, and power needs of the Territory as it continues to develop with the growth of its population and industry.

Mr. EVINS. Thank you, Mr. Bennett, for your fine statement on Alaska. I have just one or two questions and the other members probably will have some questions. After that we will ask you to give us your general statement on the Hawaiian Islands situation.

IRRIGATION

I notice you state irrigation storage for agriculture is being investigated. To what extent has this investigation been made?

Mr. BENNETT. By the Bureau of Reclamation, very little. We covered what we could find in a reconnaissance report several years ago; but at the present time our work on irrigation has been limited mostly to watching the work being carried on by the territorial experiment station in connection with the Matanuska Valley. We actually have not yet gotten into an investigation of irrigation.

Mr. EVINS. You have not made a study of irrigation in support of agriculture in a manner that may be called an investigation?

Mr. BENNETT. Not the manner of investigation we usually make.

Mr. EVINS. You have made an observation, I presume?

Mr. BENNETT. Yes, sir.

NAVIGATION

Mr. EVINS. There are 19 authorized navigation projects which have been partially constructed or on which work has not yet started. What are the principal ones of those?

Colonel STARBIRD. I will have to supply that for the record unless Colonel Powers can identify them for you, sir.

Mr. EVINS. Nineteen have been partially constructed or not started. Do you know the names of any of them?

Colonel POWERS. I can furnish those; yes, sir.

Mr. EVINS. Just the principal ones.

Colonel POWERS. They include Dry Pass; Harbor of Refuge at Seward; Ketchikan Harbor; Port Alexander; Wrangell Narrows and Wrangell Harbor.

Mr. EVINS. How far inward do those navigation streams go from the ocean?

Colonel POWERS. Navigation has not been developed very far inland. The authorized depth of most of the projects is rather shallow.

Mr. EVINS. There are no plans for power development in that area for next year?

Mr. BENNETT. For construction; no, sir.

Mr. EVINS. None for construction?

Mr. BENNETT. No, sir.

POWER

Mr. JENSEN. I was in Alaska about 10 years ago with a committee for 1 solid month and we traveled over the Territory pretty extensively. However, we did not get to any of your harbor projects except Seward and maybe one or two others; so I do not know much about it. We did become interested in your power problem up there. At Anchorage, they turned off all of the street lights almost before they turned them on, because they did not have enough power even for the residences. I think the power for the residents was turned off at 9 o'clock in the evening. Of course that was in the summertime

when there was not much need for lights, as far as that is concerned. I made the remark to the Interior Department Assistant Secretary who was with us "Now here is a good place to build a hydropower plant." I said "Now you have been looking around for places to build hydropower plants and you do not need to look very far to find plenty of sites here, and certainly they need them." That was the one they picked, the project at Eklutna, and we appropriated the next year for an investigation of the Eklutna powerplant, and it is to be finished during this fiscal year, I understand.

Mr. BENNETT. Yes, sir.

Mr. JENSEN. I am glad of that. Of course there is very little industry up there, but there is plenty of opportunity for industry if the Territory would come out and invite industry to move up there. They have not invited much industry by the acts of their Territorial legislature, nor have any of the cities made it very inviting, I might say, for industry to move up.

What is the population of Alaska now, do you know? It is around 125,000, is it not, and about one-third of them natives, I guess.

IRRIGATION PROJECTS

Anyway, that goes beyond the point. You talk about irrigation of the Matanuska Valley. I presume there is only one reason for irrigation of the Matanuska Valley, and that is to thaw out the freeze in the ground that is just a few feet below the surface even in the summertime when it is thawed out.

Mr. BENNETT. No, sir. In the Matanuska Valley there is no so-called permafrost. It occurs north of there.

Mr. JENSEN. I know, but it still has a pretty cold climate.

Now, your Kenai Peninsula, down around Homer and that area, has Matanuska wiped off of the map when it comes to an agricultural section, mainly because of the climate. It sticks out in the ocean and is warmed by the Japanese Current. I was responsible for building the road from Turnagain Arms down to Homer. I flew down there in a little plane and when I got down there I said, "How do you get in here; how do you get your stuff out of this place?" They said by small boats and airplanes. I said, "Do you get any big ships in here?" They said, "Oh, no." I said, "How do you get in here by highway?" They said, "There is no highway." There I saw some of the finest truck-garden produce raised that I ever saw in my life. We asked the experts for the farmers down there what the Territorial agriculture amounted to potentially and they said, "There is no limit."

Now we have opened up that Territory and the veterans are moving in to it no end. I do not know how many of them are in there now. They are starting homes and beginning to farm. I would rather spend money in the Kenai area for the development of roads and other things, than I would to spend the money asked for Matanuska Valley. I can tell you that, if I may be so bold.

That was just a little observation, Mr. Chairman.

Mr. EVINS. I think that is a fine observation, Mr. Jensen, for you to make for the record. I am personally pleased to have it.

Mr. JENSEN. I have been very interested. I told the folks up there, "You cannot develop this Territory without some roads," and the

record will show that the Interior Subcommittee on Appropriations has been very liberal in appropriating for road construction in Alaska. I am proud of the fact I played a part in that program. I understand now they have a road planned over to Nome from Fairbanks and that certainly is greatly needed, for many reasons. The main reason is for the defense of that great area. I hope they will put some landing strips along the road.

It is a most interesting Territory. I hope to get up there again before too long, because great progress has been made in Alaska in the past 10 years.

POPULATION GROWTH

Mr. HAND. You mentioned several times the growth of population in Alaska and Mr. Jensen asked a question which I do not think was answered for the record.

What is the population of Alaska, both white and native?

Mr. BENNETT. 182,000.

Mr. HAND. How is that divided between white population and the native population?

Mr. JENSEN. I think I can answer that. I did not know there were that many people there. There are approximately 35,000 natives, that is, Eskimos, Indians, and Aleuts. They are a mixture of all the different breeds of people that live on the Aleutian Islands, mostly. I think it is about 35,000, as I remember. I am sure that is awfully close to it. Ten years ago there were only 70,000 people living in Alaska.

Mr. CAMPBELL. According to the 1950 census, there were 128,643.

Mr. HAND. And how is that divided if it is given?

Mr. CAMPBELL. I do not have the information on that.

Mr. HAND. Would you say Congressman Jensen's observation is about correct, about 35,000 native population?

Mr. CAMPBELL. I would say so.

Mr. HAND. Are there any later figures than the 1950 census? Has there been any Territorial check or Federal check since the 1950 census?

Mr. BENNETT. I think the figure just read a moment ago is the 1953 figure.

Mr. EVINS. The justification for the Alaska project states:

> Alaska's population during the last decade increased 77.4 percent. On July 1, 1953, the United States Bureau of Census announced that the population of Alaska had increased from 128,463 to 182,000 since the 1950 census.

Mr. HAND. Is that permanent population, or does that involve any of the present military population?

Mr. CROSTHWAIT. Mr. Jennings has just been up there as our regional officer, and he may be able to give you that information.

Mr. JENNINGS. That is what they consider more or less permanent population. The Alaska Development Board has figures that run from 225,000 to 240,000 during the construction season and in the summer months. The figure of the permanent population, as you say, is about 182,000 or 183,000.

INDUSTRIAL AND ECONOMIC GROWTH

Mr. HAND. Are there any figures available with reference to the economic, industrial, or agricultural growth of the Territory in the last 5 or 10 years?

Mr. JENNINGS. Yes, sir; there are some figures available.

Mr. HAND. May they be supplied for the record?

Mr. JENNINGS. Yes, sir.

(The following was supplied later:)

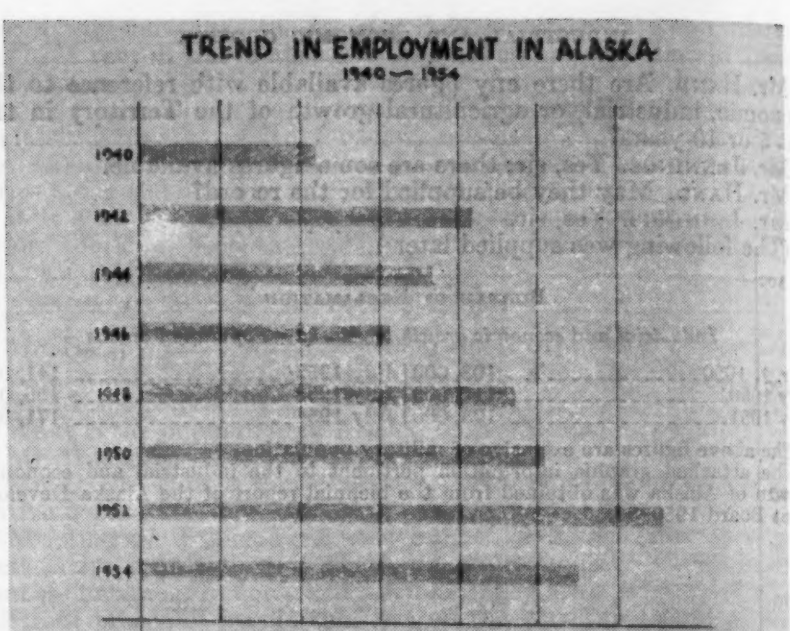
BUREAU OF RECLAMATION

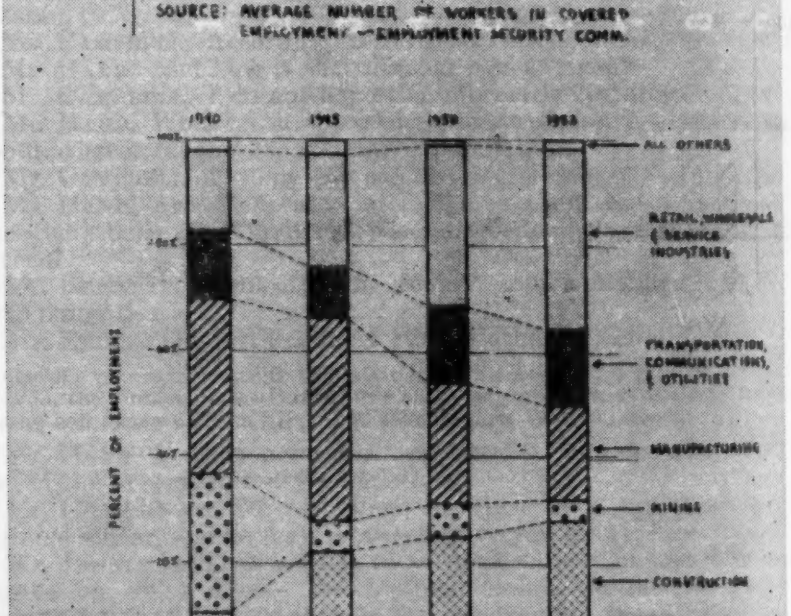
Industrial and economic growth of Alaska—Population census

Apr. 1, 1950	108,000	July 1952	141,000
July 1950	111,000	July 1953	155,000
July 1951	123,000	July 1954	171,000

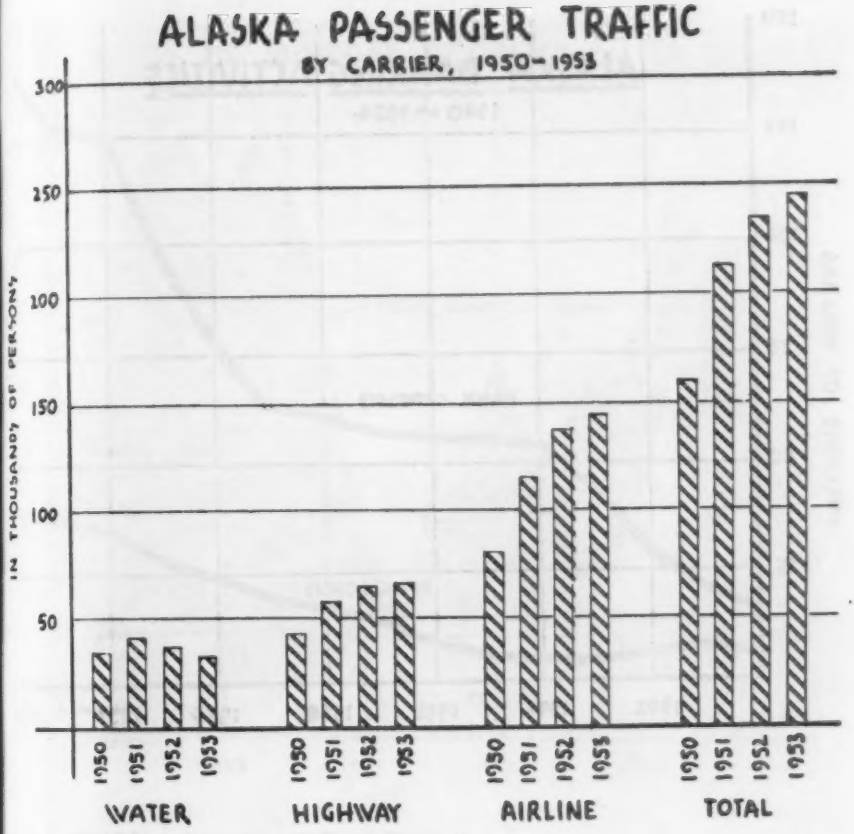
The above figures are exclusive of military population.

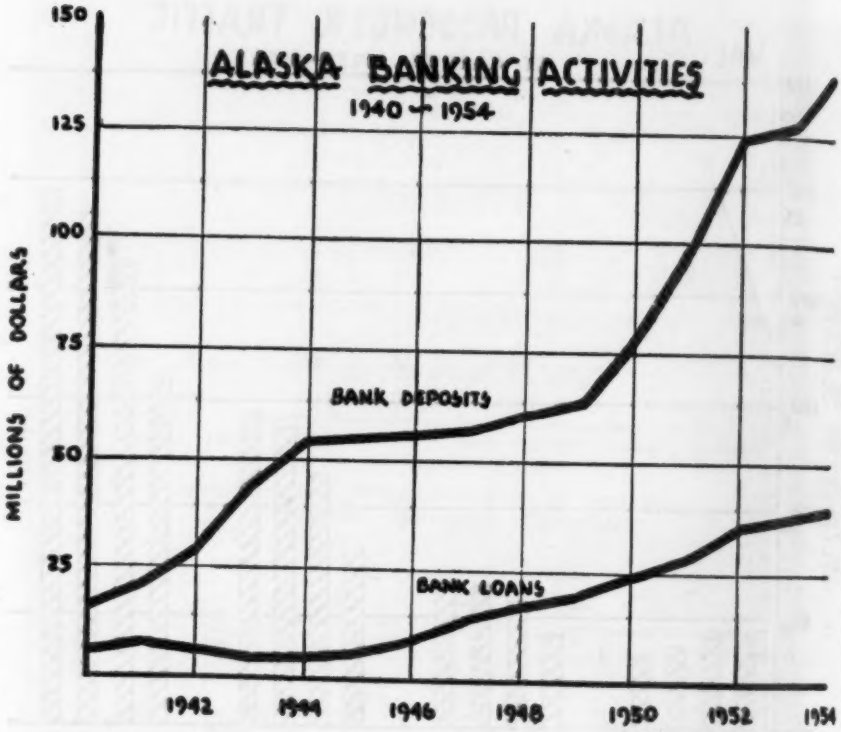
The attached graphic information pertinent to the industrial and economic growth of Alaska was obtained from the biennial report of the Alaska Development Board 1953–55.

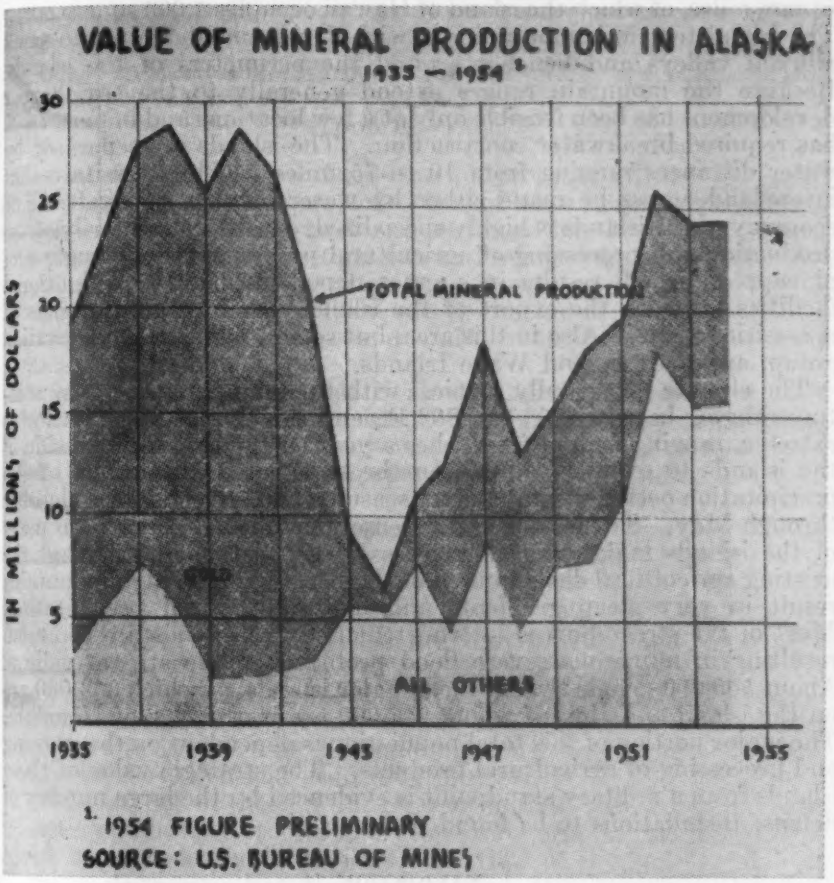




IN THOUSANDS OF PERSONS


ALASKA PASSENGER TRAFFIC
BY CARRIER, 1950-1953
IN THOUSANDS OF PERSONS
300
250
200
150
100
50
1950
1951
1952
1953
WATER
HIGHWAY
AIRLINE
TOTAL


ALASKA BANKING ACTIVITIES
1940 – 1954
MILLIONS OF DOLLARS
150
125
100
75
50
25
BANK DEPOSITS
BANK LOANS
1942
1944
1946
1948
1950
1952
1954



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General Statement, Territory of Hawaii

Mr. Evins. Now, Mr. Bennett, will you give us the general statement on the Hawaiian Island area?

Mr. Bennett. The Hawaiian Islands group consists of the islands of Kauai, Oahu, Molokai, Maui, and Hawaii. The islands are all of volcanic origin and comprise a total area of approximately 6,420 square miles, of which the island of Hawaii occupies 4,000 square miles. The island terrain is mountainous with development limited to small alluvial valleys and benches around the perimeters of the islands. Because the mountain ranges extend generally to the sea, harbor development has been feasible only at a few locations and in most cases has required breakwater construction. The islands are separated by water distances ranging from 10 to 75 miles which necessitate that interisland access be made either by water or airborne craft. The economy of the islands is highly specialized, consisting primarily of the production and processing of agricultural products, largely sugar and pineapples, which results in a great dependence upon navigational facilities for both the export of the islands' produce and imports of necessities of life. Also in this area, but separated from the Hawaiian group, are Midway and Wake Islands.

The climate is generally tropical with the annual average temperature ranging between 70° and 80° F., and the annual precipitation is extreme, ranging from a few inches a year on the arid leeward side of the islands to over 400 inches on the windward side. Most of the precipitation occurs during a rainy season which extends from October through May. The extended dry season and arid conditions on parts of the islands make irrigation necessary to sustain and expand the existing agricultural development of these areas. The high mountains result in very steep gradients and intense localized precipitation. Most of the streamflow is intermittent and flash floods are common, resulting in numerous severe flood problems in the stream valleys. About 500,000 people live on the 5 major islands, of which 353,000 are on the island of Oahu, of whom 248,000 are in the city of Honolulu. The major portion of this total population is dependent on the growing and processing of agricultural products. The strategic value of these islands from a military standpoint is evidenced by the large number of defense installations to be found there.

NAVIGATION

The overall authorized navigation program of the Corps of Engineers consists of 8 harbors—2 each on 3 of the islands, and 1 each on the other 2 islands. In addition, a harbor has been authorized on each of the islands of Wake and Midway. Five of the Hawaiian harbors have been completed with no further work authorized. On the remaining 3, engineering planning only has been performed on 1. Nine investigations and surveys for harbor improvements have been authorized of which three are actively in the process of preparation. One of these investigations includes a study of a series of harbors for light draft vessels for all of the islands in the area. These harbors are urgently needed.

Harbors with depths up to 35 feet have been completed for all islands except Molokai, where Kaunakakai Harbor is only 23 feet

in depth. In addition a seaplane base has been developed in Keehi Lagoon by the dredging of 8.15 miles of runway to a 10-foot depth.

Because of difficult access to parts of the individual islands by overland transportation, an additional deep-draft harbor has been authorized for Hawaii at Kawaihae, and a second harbor on Kauai at Nawiliwili has been authorized for deepening to 35 feet. In view of the congestion in Honolulu Harbor on Oahu, a second entrance was authorized in 1954.

No projects are under construction. Engineering planning is underway for Kawaihae Harbor. No new starts are contemplated for fiscal year 1956.

FLOOD CONTROL

The overall authorized flood-control program of the Corps of Engineers consists of four projects. One of these projects is complete, planning is underway on two, and no work has been done on the remaining one. Four investigations and surveys have been authorized, of which two are being actively processed.

Kaunakakai Gulch on Molokai was completed in 1951. It consists of levees and channel enlargement and provides for flood protection to the town of Kaunakakai.

Three projects consisting of channels and flood walls have been authorized for streams on the islands of Kauai, Oahu, and Hawaii. The major flood damage that would be prevented is to residential property in the towns of Hanapepe, Hauai, Kailua, Oahu; and Hilo, Hawaii.

No projects are under construction and no new starts are being proposed for fiscal year 1956.

IRRIGATION

Experience in the islands has shown that productivity of the land can be substantially increased by the availability of an adequate water supply during the entire crop year. Considerable irrigation development has been done by private capital, and the Hawaiian Irrigation Authority also is active in the planning, construction, and operation of water conservation and utilization projects.

Public Law 643 of the 83d Congress authorized the Secretary of the Interior to undertake studies and prepare reports on the reclamation aspects of certain specific projects. In view of the fact the Hawaii Irrigation Authority has been established and currently is doing planning work in the islands, this authorization will be used to render technical assistance and review the authority's planning. In fiscal year 1956 the Bureau proposes a limited program of this type in connection with the Waimea project on the island of Hawaii and the Molokai project on Molokai Island.

No power projects have been developed or are under study by the Federal Government on the islands.

OTHER FUNCTIONS

A project for restoration and maintenance of the beach at Waikiki, Oahu, has been authorized for the Corps of Engineers. No construction or planning funds have been provided or are contemplated in fiscal year 1956. A cooperative investigation is underway for Hanapepe and Waimea beaches on Kauai.

CONCLUSION

The economy of the Hawaiian Islands is dependent principally upon producing, processing, and exporting pineapple and sugar and importing most items needed for normal living. Expansion of current crop production to meet the increasing demand for food and fiber is to a large extent dependent on additional irrigated acreage. Interisland commerce is dependent largely on water transportation. The present program is providing deep-draft harbors to meet the need of a growing commerce. The rugged mountainous terrain of the islands causes flash type of floods to occur which causes extensive damage in numerous small but highly developed alluvial valleys. Improvements included in the flood-control program would prevent most flood damage and allow full development through irrigation of the limited alluvial valley lands. The depletion of the beaches of Hawaii is a problem of increasing proportions. The shore protection projects would correct the problems considered.

Mr. EVINS. Thank you for your statement.

REHABILITATION SINCE DECEMBER 7, 1941

Since that infamous day in 1941, December 7, I wonder if you could tell us what rehabilitation has been made in the harbors around Hawaii.

Colonel POWERS. The condition of the harbors has been good for many years. We normally go in and recondition or dredge about every 5 to 7 years. We dredge all the harbors the same year in order to reduce the high cost of mobilizing hopper dredges in the United States and taking them to Hawaii. This year we plan to dredge most of the harbors in Hawaii and at the same time we are going in to rehabilitate the jetties and breakwaters which were damaged in the storm during the spring of 1954.

Mr. EVINS. Most all of the needed and essential work has been done and the harbors and the ports have been rehabilitated and repaired and are in excellent condition as of today?

Colonel POWERS. No, sir. That will be done during the fiscal year 1956.

Mr. EVINS. Do you mean the dredging?

Colonel POWERS. Are you referring to the damage caused by the attack at Pearl Harbor?

Mr. EVINS. Yes.

Colonel POWERS. I misunderstood the question. Yes, that was done with military funds.

Colonel STARBIRD. That damage was primarily in Pearl Harbor itself, which is a separate harbor from the commercial harbors. That is a naval harbor.

IRRIGATION

Mr. EVINS. I judge that irrigation is probably the most important factor in the agricultural life of the islands?

Mr. BENNETT. Extremely important.

Mr. EVINS. How extensive has been the work of the Bureau of Reclamation? I judge very limited.

Mr. BENNETT. To date we have done very little. We made an investigation in 1938 of the island of Molokai and another one of the Waimea project in about 1946.

Mr. EVINS. Can you give the committee an estimate of the amount of expense contributed by individuals and industry on irrigation?

Mr. BENNETT. All irrigation to date has been by private industry and it runs into the millions of dollars.

POWER

Mr. EVINS. Is there any need for the development of hydroelectric power in the area?

Mr. BENNETT. There is a great need, but very little opportunity.

Mr. EVINS. How is the power going to be produced, by steamplants?

Mr. BENNETT. Principally by steam plants; yes. I went over the island in December. We found one location for a possible hydroelectric plant on the island of Kauai.

Mr. EVINS. It is the recognized principle of power development that the auxiliary power of a steam plant is necessary to any efficient system, and sometimes it is altogether important where hydroelectric power cannot be developed.

Mr. BENNETT. Yes. There is one hydroplant on the island now. All the rest are steam.

Mr. HAND. Do they import all their fuel for steam from the United States?

Mr. BENNETT. Yes.

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

Mr. EVINS. We will insert in the record at this point the summary of appropriations and also pages 1, 2, 3, and 4 of the justifications.

(The pages referred to are as follows:)

HAWAII AND ALASKA DRAINAGE AREAS—JUSTIFICATION OF ESTIMATE

GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. Examinations and surveys

(a) *Navigation studies.*—The amount of $19,200 is requested for work on three studies in the Hawaii and Alaska Drainage Areas. This amount will permit completion of two reports and continuation of work on the other.

The tenative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Alaska: Alaska 308 report	$325,000	$242,100	$15,000	$67,900
Hawaii:				
Hilo Harbor (seawall)	23,000	20,800	2,200	0
Kalepolepo Harbor, Maui	12,000	10,000	2,000	0
Total	360,000	272,900	19,200	67,900

(b) *Flood-control studies.*—**The amount of $15,000 is requested for continuation of work on the Alaska 308 report.**

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Alaska: Alaska 308 report	$775,000	$658,100	$15,000	$101,900
Total	775,000	658,100	15,000	101,900
Grand total	1,135,000	931,000	34,200	169,800

Advance Engineering and Design, Corps of Engineers

Mr. Evins. Under "Advance engineering and design" you are requesting $35,000 for the Gold Creek project in Alaska.

We will insert the justification material at this point.

(The matter referred to follows:)

Alaska

Justification of estimate

Construction, general, fiscal year 1956

Advance engineering and design.—Funds in the amount of $35,000 will be applied to advance engineering and design on 1 flood-control project in Alaska. This project having a total estimated cost of $390,000 will be brought to a stage where construction can be initiated.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects: None.				
Flood-control projects:				
Alaska:				
Gold Creek	$390,000	----------	$35,000	[1] $355,000
Multiple-purpose projects including power: None.				
Reexamination of projects in "deferred for restudy" category: None.				
Grand total, advance engineering and design	390,000	----------	35,000	355,000

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

Mr. Evins. What is the nature of this project and why is it needed?

Colonel Starbird. This is a local flood-control project for the city of Juneau, sir. The city itself lies on the cone, the debris cone, of Gold Creek. The channel there is in danger of breaking out and flooding extensive sections of the city. The $35,000 requested would be sufficient to bring the project to construction readiness. It is a cooperative project with local interests, the benefit-cost ratio being 2.2 to 1.

Operation and Maintenance, Corps of Engineers

Mr. Evins. Under "Operation and maintenance" you are requesting a total of $1,232,000. How will those funds be used?

Colonel Powers. The funds requested are entirely for the maintenance of navigational projects. In the case of Alaska, the project at

Nome Harbor is essential to the local economy and is maintained at a depth of 8 feet.

In the Territory of Hawaii there are six projects which have been authorized and completed and require maintenance from time to time. The dredging problem in Hawaii is such that we go out there every 5 or 6 years to accomplish all the dredging needed in the various harbors. This year every harbor will be dredged by a seagoing hopper dredge to bring it up to appropriate standards.

In addition there is included within the funds requested for Hawaii a total of approximately $740,000 for the repair of breakwaters and jetties which were damaged in the storms of last spring.

Mr. EVINS. $50,000 is to be expended in Alaska and probably $200,000 in Puerto Rico and the remaining in Hawaii?

Colonel POWERS. That is correct.

Mr. EVINS. We will insert pages 5 and 6 of the justifications in the record at this point.

(The matter referred to follows:)

JUSTIFICATION OF ESTIMATE

OPERATION AND MAINTENANCE, GENERAL, FISCAL YEAR 1956

1. *Navigation.*

(a) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels and harbors by means of dredging and repairing harbor jetties and breakwaters; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $1,232,000 for fiscal year 1956 is required for essential maintenance work on 10 channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis and determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly structural repairs. The funds provided for in the budget estimate will provide for accomplishment of a major part of the backlog of such work.

Project	*Tentative allocation, fiscal year 1956*
Alaska: Nome Harbor	$50,000
Territory of Hawaii:	
Hilo Harbor	60,000
Honolulu Harbor	60,000
Kahului Harbor	560,000
Kaunakakai Harbor	20,000
Nawiliwili Harbor	240,000
Port Allen Harbor	70,000
Puerto Rico:	
Arecibo Harbor	60,000
Mayaguez Harbor	30,000
San Juan Harbor	75,000
Project condition surveys	7,000
Total navigation	1,232,000
Grand total insular possessions	1,232,000

PUERTO RICO

Mr. EVINS. What is the situation in Puerto Rico?

Colonel POWERS. In Puerto Rico there are four projects which have been authorized and completed. One of those does not require any

maintenance for the next 4 or 5 years. Three projects will be maintained during the coming year—Arecibo Harbor, Mayaguez Harbor and San Juan Harbor. Arecibo Harbor was a harbor dredged to a depth of 25 feet several years ago. Commerce has not been developed in that area, and it has not been considered economical to proceed with maintaining the 25-foot depth until recently when the Puerto Rican Transportation Authority completed its development in the area, and there seems to be a very good opportunity for increased industrial development in the vicinity of Arecibo Harbor to occur provided they have a 25-foot depth as authorized.

CORPS OF ENGINEER DISTRICTS

Mr. EVINS. How long have you been maintaining Corps of Engineer Districts in these three places, Alaska, Hawaii and Puerto Rico, and how extensive are your offices in these Territories?

Colonel POWERS. I will furnish for the record the strength of the offices at the present time and the dates of their activation.

(The data requested follows:)

The present Alaska District was established April 10, 1946, for military activities and assigned civil functions previously handled by Seattle District on July 1, 1949. Strength as of March 31, 1955, was 11 on civil functions and 985 on military functions.

The former Honolulu (Hawaii) District was reduced to an area office of the San Francisco District on July 31, 1950. Strength as of March 31, 1955, was 18 on civil functions and 74 on military activities.

The present area office of the Jacksonville, Fla. District at San Juan, Puerto Rico was established June 30, 1950. It was formerly a suboffice of the Panama District and prior to that a district office in its own right. The strength as of March 31, 1955, was 3 on civil works and 99 on military functions.

Mr. EVINS. Are most of them adjuncts of military offices?

Colonel POWERS. They all have additional functions in carrying out military construction missions. Two of them are area offices, while Alaska is a district office. In Alaska there are area offices of the district office. They have a military mission as well as a civil works mission.

KAHULI HARBOR, HAWAII

Mr. HAND. Going back to Hawaii, I cannot help but be struck by the requested fund of $60,000 for the important harbor of Honolulu and a sum of $560,000 for Kahului Harbor. Have you any special problem at the second harbor?

Colonel POWERS. As of June 30, 1954, there were breaks in the existing breakwaters at Kahului Harbor. The estimated cost of repairing them at that time was $525,000. It is estimated that since that time there has been an additional deterioration of the jetties and the breakwaters, probably in excess of $100,000. However, we have not requested funds in this budget for that added work which may found to be required at the time we go into it.

Mr. HAND. What is the draft of that harbor?

Colonel POWERS. The draft of that harbor is 35 feet.

Mr. HAND. Will it take oceangoing vessels?

Colonel POWERS. Yes, sir.

Mr. HAND. What is the nature of the commerce?

Colonel POWERS. Sugar and molasses is about 30 percent of the traffic and the balance is canned pineapple juices, animal feed, fertilizer and petroleum products.

Mr. HAND. What is the total annual tonnage?

Colonel POWERS. In 1953, 640,000 tons.

Mr. HAND. Do you have a somewhat similar problem at Nawiliwili Harbor?

Colonel POWERS. It is another harbor where we had breakwater damage.

Mr. HAND. Apparently you have not suffered that kind of damage in Honolulu?

Colonel POWERS. No, sir, we have not.

PEARL HARBOR

Mr. HAND. Is the harbor at Pearl Harbor used at all for civilian purposes?

Colonel POWERS. Commercially; no, sir. It may be used for recreation craft tying up when permitted by the military, but no commercial.

Mr. HAND. Is it restricted by some Defense Department ruling?

Colonel STARBIRD. It is not as convenient as the Honolulu Harbor. It is more open. At Pearl Harbor you go in through quite a neck into the central part of the island.

Mr. HAND. How far is it from Honolulu Harbor?

Colonel STARBIRD. The entrance, I would guess, airline, is something like 2 or 3 miles. It is quite a distance on the ground because there are indentations.

GENERAL INVESTIGATIONS, ALASKA, BUREAU OF RECLAMATION

Mr. EVINS. We will now take up "General investigations, Alaska." We will insert pages 1 and 2 of the justifications at this point.

(The pages referred to are as follows:)

GENERAL INVESTIGATIONS

Estimate for Alaskan Investigations

Allocation of appropriation, fiscal year 1955	$100,000
Prior year balance available	459
Total obligations, fiscal year 1955	100,459
Estimated allocation of appropriation, fiscal year 1956	100,000
Total obligations, fiscal year 1956	100,000

DESCRIPTION

The funds for the Alaskan investigation program provide for investigations by the Bureau of Reclamation of potential water resource development projects in the Territory of Alaska as a basis for appropriate legislation.

WORK UNDERWAY AND PROPOSED

During fiscal year 1955, the $100,459 of funds now available will be utilized to complete the investigations and prepare feasibility reports on the Blue Lake and Lake Dorothy projects, potential hydroelectric developments. It will also be

utilized to initiate studies on the Lawing project and to undertake a small amount of preliminary work on the Matanuska Valley project, a potential irrigation development.

In fiscal year 1956, the $100,000 requested for this program will be required for completion of investigations and preparation of a report on the Lawing project and for a small program of preliminary work on the study of the Matanuska Valley project in preparation for a full-scale investigation in later years. In addition, it is hoped that within the available funds and manpower, it will be possible to undertake a small amount of preliminary work on Caribou project, a needed hydroelectric development near Palmer, Alaska.

JUSTIFICATION

Alaska's population during the last decade increased 77.4 percent. On July 1, 1953, the United States Bureau of Census announced that the population of Alaska had increased from 128,463 to 182,000 since the 1950 census. The largest growth in the Territory took place in the Anchorage-Fairbanks rail-belt area. With this unprecedented population growth there are insufficient schools, commercial establishments, public utility services, and service industries. Electric services are curtailed, and many dwellers in the suburban and rural areas are unable to obtain electric service.

Private utilities are practically nonexistent in the Territory, and cities and municipalities are seriously handicapped in financing expensive hydroelectric developments. Revenue bonds, practically the only method available for improvements and expansion to accommodate the influx of populations, have been selling at the almost prohibitive rate of 5 percent. Terms of these bonds are also short, providing unusually difficult obstacles to cities and municipalities in providing their own requirements.

A vast waterpower potential exists in Alaska, conservatively estimated to be in excess of 46 billion kilowatt-hours annually. Its importance to world economy cannot truly be evaluated. Development of this waterpower is essential in the future economic welfare of the country. Today little factual information exists, and comprehensive studies are a prerequisite to the planning of its use. It is important that investigations be continued since these investigations will contribute materially toward permanent settlement, encourage industrial development, and accelerate use and aid in the development of other Alaskan natural resources.

Mr. Evins. The request is for $100,000 for fiscal year 1956. Colonel, what are the projects?

LAWING PROJECT

Mr. Bennett. Out of the $100,000 we propose to continue our investigation and complete a report on the Lawing project, a proposed hydroelectric development on Cooper and Crescent Lakes near Seward, Alaska. That will require about $96,000. The remaining part we propose to put on the initiation studies of the Matanuska Valley.

Mr. Evins. Is this project a hydroelectric power project?

Mr. Bennett. Yes.

Mr. Evins. You testified earlier there was ample need for it.

MATANUSKA VALLEY

What does the Matanuska Valley project encompass?

Mr. Bennett. That is irrigation. Matanuska is an area, as you will recall, of farming developed in the early days of the depression by the Federal Government for settlers. There are about 29,000 acres there which had been proposed for farming, about one-half of which have been cleared and are presently being farmed under dry farming conditions. There are about four farmers now irrigating.

Mr. Jensen. With regard to the Matanuska Valley development program, as I remember, there were something like 110 or 120 farmers that were settled in that area; is that right?

Mr. BENNETT. I do not recall offhand the number that were finally settled.

Mr. JENSEN. That is close to it. Now, about half of those farmers gave up the ghost after a few years on those farms. I am wondering how many of the original farmers are today still on their land.

Mr. BENNETT. I cannot tell you how many of the original farmers are there, but there are about 14,000 acres being farmed. How much of a changeover in farmers there has been, I do not know.

Mr. JENSEN. You have quite a problem because of the shortness of the season. There has been an attempt to develop crops that could be grown during the short season. It was quite an expensive experiment. We built very nice homes and houses and barns and chicken coops for each of the farmers.

I would say on the whole it was not very satisfactory. It is rather difficult for me to understand how we can be justified in furnishing money for irrigation on the Matanuska project. I am not going to close my mind to it because I certainly would not want to hurt anyone up there, but I think, Mr. Chairman, we better have considerable investigation made before we appropriate money for irrigation construction.

Mr. EVINS. I would like to ask what legal authority exists for these investigations.

Mr. BENNETT. At the present time the Bureau operates under an annual legal authority derived through the appropriation act.

Mr. JENSEN. What is the Territorial Legislature of Alaska doing to develop the Matanuska Valley?

Mr. BENNETT. They are doing quite a bit through the University of Alaska's experimental station.

Mr. JENSEN. I know that. That is in the development of proper crops, generally speaking. I think, Mr. Chairman, I would take this position. Before we spend much money on the investigation of irrigation possibilities that the people themselves should start the ball rolling. If they feel like spending a reasonable amount of money, it is quite possible we would be justified in helping out. I think that the first move should be made by the Territorial Legislature to introduce an irrigation program for the Matanuska Valley and if, after they make some investigation, they find it is economically feasible, I believe that we would be justified in helping. After all, the people up there themselves should be more interested in it than we. While we want to keep a continuing interest in it, and of course we will, after all, they are citizens, and we want to treat them just as well as we can, just as we treat people on the mainland, but generally speaking, here on the mainland we expect the States to initiate these things they would like to have the Government help with. I think it is only fair that the Territorial Legislature prove to us they are interested in irrigation and this development before we take hold of the matter. I am saying that for the record because I hope it may encourage the Territorial Legislature to take an interest in this project.

HYDROELECTRIC INVESTIGATION

Mr. HAND. How much of this $100,000 under "General investigations" is proposed to be spent on the hydroelectric investigation and how much on the Matanuska Valley irrigation project?

Mr. BENNETT. We propose to spend $96,800 of the $100,000 on the hydroelectric investigation and $3,000 on the Matanuska Valley.

Mr. HAND. You do not propose to do much about the Matanuska Valley.

Mr. BENNETT. No, sir. It is just a start. We want to start some studies on sources of water supply and method of delivery, the kinds of distribution systems and to begin looking into such things as to how water rights might be protected. There is now no system of water rights.

Mr. HAND. To what extent, if at all, is your investigation on hydroelectric power proposal duplicating any work which may have been done by the Corps of Engineers?

Mr. BENNETT. To my knowledge, it is not duplicating any work.

Mr. HAND. Has any work been done on that to your knowledge, Colonel Starbird?

Colonel STARBIRD. There has been some work done but we have been selecting areas, and generally investigating those areas for flood control and navigation. We have completed five areas. We give incidental coverage to multipurpose at the same time. Our directive tells us to look into the hydroelectric power aspects also, but all the recommended improvements so far have been for navigation and for flood control.

Mr. HAND. Have you any studies on hydroelectric power?

Colonel STARBIRD. We consider the major part of those would come later, sir. We have given incidental coverage, but we have not found any economically justified projects with the studies we have made so far.

Mr. HAND. The studies you have made so far would, in your judgment, be useful to the Bureau of Reclamation?

Colonel STARBIRD. I think they are useful and I believe they use the information we develop just like we use the information they have.

FINANCING BY REVENUE BONDS

Mr. HAND. On page BR 2, the second paragraph, I note this statement that revenue bonds are practically the only method available for improvement, including private utilities and city utilities, to accommodate the influx of population. Why is that? How about obligations of the municipalities themselves, the cities?

Mr. JENNINGS. There are certain limitations on the taxing power of the cities by Federal legislation which limit their obligations, so it leaves them with the alternative on power developments financed by issuing revenue bonds. They have found that they are at quite a disadvantage in participating in the bond markets to sell the bonds. They have had to pay a very high rate of interest, usually with a short term of years.

Mr. HAND. Your statement goes on to say that the rate of interest has been the almost prohibitive rate of 5 percent. In the present market conditions that is undoubtedly a high rate for municipal bonds, but would you go so far as to call that a prohibitive rate? A few years ago general obligations bonds in municipalities of the United States were selling at that rate of interest, or very close to it.

Mr. JENNINGS. It is prohibitive from the standpoint of making expensive hydroelectric projects, sir, especially in Alaska. You have

construction costs that are very high because the work is outside the continental United States and you add on a high rate of interest over a short period of years, making it almost prohibitive for those developments. That is what we were trying to point out.

POWER REQUIREMENTS OF ANCHORAGE AND KENAI PENINSULA AREAS

Mr. HAND. What is the situation with respect to the requirements for power and the available power in the Anchorage and Kenai Peninsula areas?

Mr. JENNINGS. The Anchorage area itself will be about satisfied from the construction of the Eklutna project. That is a 30,000-kilowatt installation that is just now coming on the line. We estimate that it will satisfy the power requirements there for probably the next 2 or 3 years. It went into production at a very opportune time. There was a serious fire in the city of Anchorage damaging their diesel plant and they lost four large units. We were able to get the first Eklutna generator on the line about 3 months ago. The second generator is just now being placed on the line, and they are using just about the full output of power at the present time. As far as the Kenai Peninsula is concerned, they have the production at Seward, which is diesel, but the other areas are very much handicapped. Power costs from diesel generation run anywhere from 22 to 29 mills and up and they are very badly in need of power throughout the area. It is not a large amount, but it is very seriously needed.

Mr. HAND. Do you anticipate an additional need in the event of any industrial growth of consequence in the next 5 years?

Mr. JENNINGS. The area seems to be growing extremely fast, sir. However, how it will grow in the future is hard to predict. The Kenai Peninsula area is a very nice area and everybody anticipates that it is going to grow substantially in the future.

Mr. HAND. What has occasioned that growth except for the military activities of the United States in the area?

Mr. JENNINGS. I think mostly it is desire for land and homesteads. That area is being settled up very fast at the present time.

Mr. JENSEN. You are talking about the Kenai Peninsula area?

Mr. JENNINGS. Yes. There is some fishing, mining, and recreation and there is a king crab industry and some timbering. Those are about the major ones.

Mr. HAND. Does the Alaska Railroad have any generating capacity, steam plants or otherwise?

Mr. JENNINGS. Yes, sir.

The railroad and the Chugach Electric Association built a plant in the city of Anchorage. It is about an 8,500-kilowatt installation.

Mr. HAND. And that power is now being used?

Mr. JENNINGS. Yes. It is a coal-fired steam plant. The cost of coal generation is quite high. The mining cost of coal is high and the transportation costs are high.

Mr. HAND. What would be the general nature of this investigation for which some $96,000 is sought? Is it for the location of suitable sites, or would it go further than that?

Mr. BENNETT. Location of suitable sites, cost estimates, production studies, and things like that.

Mr. HAND. Have not those sites been fairly well mapped out in all the years that we have been occupying the Territory, or has nothing been done about that?

Mr. BENNETT. You can have general maps that are not suitable for detailed planning.

Mr. HAND. I was not referring to that. Has any study heretofore been made for suitable sites for hydroelectric development?

Mr. JENNINGS. Yes. There are quite a number of studies. They have not gone into much detail. They are principally of a reconnaissance nature. The Corps has been making some and the Bureau some. The Corps did some very preliminary work on these two sites they are talking about on the Kenai Peninsula, and we used their studies as the basis for initiating these additional studies for which we are asking money now.

Mr. HAND. Will all this money be used, in your judgment, during the current 1956 fiscal year?

Mr. JENNINGS. Yes, to very good advantage.

Mr. HAND. Give me a little detail as to how it would be used.

Mr. JENNINGS. The plan mentioned includes two sites at Crescent and Cooper Lakes. They are glacial lakes lying about 800 feet in elevation above Kenai Lake. The work to be done would include diamond drilling work at sites for dams and tunnels; the making of topographical surveys to determine where the structures could be built and to determine the cost estimates, to make a survey of the power market to determine how much power is needed, the sources where it would have to be delivered, locations for transmission lines, and all the engineering studies necessary to come up with a complete report for a plan of development.

Mr. HAND. Would the plan be complete or more or less tentative? It would not be an engineering plan, would it?

Mr. JENNINGS. It would come to the grade of what we call a feasibility report, which could be presented to Congress for their consideration.

Mr. HAND. We would still have to design it?

Mr. JENNINGS. To make a final design, yes, but it would have preliminary designs and estimates.

Mr. HAND. Have you any planning money before for the examination of hydroelectric sites and studies in the Territory?

Mr. JENNINGS. Yes; I think there is a record of the investigation moneys that have been appropriated.

Mr. JENSEN. I think that you will find it has been for the past 10 years.

Mr. BENNETT. 1949 was our first year.

Mr. HAND. How much has been appropriated and expended?

Mr. CROSTHWAIT. The cost of investigations to June 30, 1954, on items active in fiscal years 1955 and 1956, has been $305,449. In the current fiscal year we are spending $109,729.

Mr. HAND. As the result of that expenditure are there any reports actually available now for the construction of hydroelectric sites?

Mr. BENNETT. Yes; there is available the report on the Eklutna project now constructed. There are two reports just coming out of the Department on the Blue Lake project near Sitka, and Lake Dorothy near Juneau.

Mr. JENSEN. I may say in that connection it is quite possible Congress has only appropriated during the last 6 years money for investigation of hydroelectric plant sites and related facilities in Alaska specifically. Before that time, I think you will find the Interior Department may have spent money for investigations that was taken out of general investigation funds. We spent money 9 years ago for investigations which brought the Eklutna project into being. I know that we spent money that long ago.

Mr. BENNETT. You are right, sir. I am sorry.

Mr. JENSEN. Of course, Alaska is somewhat different from Hawaii so far as dam sites are concerned. There is no end to fine dam sites in Alaska. They are just all over the place.

(Discussion off the record.)

Mr. EVINS. I think it should be said for the record that in view of the tremendous population increase that has been shown here, and in view of the statements of Mr. Jennings and Mr. Bennett of the Bureau of Reclamation, and Colonel Starbird and Colonel Powers of the Corps of Engineers, and Mr. Jensen of this committee, his own statement of the need of power in the area, I think that we will be justified in providing the funds for further investigation looking toward the development of hydroelectric power in the area for which this committee has a real responsibility.

Mr. JENSEN. There is considerable coal in the Kenai Peninsula area and it is pretty good steam coal, is it not?

Mr. JENNINGS. That is very true. They are somewhat handicapped in mining the coal. The coal seams usually have a very steep dip. The mechanization of mining is somewhat more difficult than it is in the mines here in the States where the coal seams are usually more level. The cost of transportation and all makes that coal quite expensive. An offhand comparison would be, I think, the cost of power from the steam plant, built by the Alaskan Railroad and the REA which is about 18 mills with that of hydropower from Eklutna which is selling for 11 mills under temporary approval.

Mr. JENSEN. You have a power shortage in this area at this time?

Mr. JENNINGS. No, sir.

Mr. JENSEN. Is the demand for power pronounced in any particular area right now?

Mr. JENNINGS. There is a power shortage in practically all the area of Alaska, or there will soon be a power shortage, as we see the picture, at all places except Juneau and Anchorage. Juneau, by reason of the fact that there are existing power facilities at the old AJ mine, which is not in production, is a possible power source.

(Discussion off the record.)

OPERATION AND MAINTENANCE, ALASKA, BUREAU OF RECLAMATION

EKLUTNA PROJECT

Mr. EVINS. We will insert into the record at this point pages 464 through page 467 of the justifications.

(The pages referred to are as follows:)

Eklutna Project, Alaska

PROJECT DATA

Authorization

The Eklutna project was authorized under the act of July 31, 1950 (64 Stat. 382) as amended by the act of August 13, 1953 (67 Stat. 574).

Location

The project is located in south central Alaska approximately 35 miles northeast of the city of Anchorage, Alaska.

Description

The purpose of the project is the development of hydroelectric power from the stored water of Eklutna Lake. Facilities include New Eklutna powerplant with appurtenant tunnel inlet, tunnel, penstock, surge tank and tailrace; existing Eklutna Dam which has been rehabilitated; transmission lines to Anchroage and Palmer, Alaska; and associated switchyards, substations and general facilities. The project will have an installed capacity of 30,000 kilowatts.

Status

Construction began in the latter part of fiscal year 1951. Funds available from the fiscal year 1955 allotment are sufficient to complete all construction work, provided grouting of voids behind the tunnel lining is accomplished with light to moderate "take" of grout and presently unforeseen contingencies do not arise. The initial unit of Eklutna powerplant is now in service and the second unit is scheduled to be placed in service in April 1955.

Repayment

The entire construction cost of Eklutna project will be repaid from power revenues. As required by the act of August 13, 1953, a contract has been executed for the sale of 16,000 kilowatts of power to the city of Anchorage and includes arrangements whereby the city receives a credit on a portion of power purchased in return for their interest in the existing Eklutna powerplant. A finding that the requirement of the act has been complied with was made by the Secretary of the Interior on November 30, 1953. A contract has been signed by the Matanuska Electric Association for 5,000 kilowatts and a contract is being negotiated with Chugach Electric Association for the sale of the remaining 9,000 kilowatts.

Amount to be repaid and the repayment period are:

Power	$29,500,000
Regular repayment period	1955–2004
Total (years)	50

History of project development

Initial date: Planning, 1948; advanced planning, 1950; construction, 1951.

Date of functional completion of construction, fiscal year 1955.

Fiscal year and amount of initial allotment of appropriations for construction, fiscal year 1951, $1,100,000.

Construction costs

Original estimated cost	$20,365,400
Allocation of cost: Power	20,365,400
Present estimated construction cost	29,500,000
Allocation of cost: Power	29,500,000

The total estimated construction cost of the project has been reduced from $33,000,000 to $29,500,000 (anticipated total obligations, $29,550,000). This decrease is due to elimination of a substation at the Old Eklutna powerplant site; reduction of estimate due to final determination of subsurface conditions allowing reduction of tunnel drains and reduction of reinforcing steel in tunnel lining; and downward adjustment of estimate to reflect actual bid prices and final costs on completed portions of the project.

Schedule of development

	Through fiscal year 1954	Fiscal year 1955	Fiscal year 1956	Ultimate
Power (kilowatts)		30,000	30,000	30,000
Tentative power rates (mills per kilowatt-hour):				
Firm (estimated at 50-percent load factor)		11.0	11.0	11.0
Nonfirm (average)		6.0	6.0	6.0

EKLUTNA PROJECT, ALASKA

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		
Total obligations, fiscal year 1955		
Allotment, fiscal year 1956	$234,000	
Total obligations, 1956		$234,000

Work proposed, 1956

	Program, 1956	Increase or decrease from 1955
POWER FACILITIES		
Electric generation: For normal operations and maintenance of Eklutna powerplant. First year of operation	$165,000	+$165,000
Transmission and distribution expense: For normal operation and maintenance of transmission and distribution facilities. First year of operation	60,000	+60,000
Replacements and improvements: Install semiautomatic equipment in old Eklutna powerplant	9,000	+9,000
Total obligations	234,000	+234,000

GENERAL INVESTIGATIONS, HAWAII, BUREAU OF RECLAMATION

Mr. EVINS. Under the general investigation for Hawaii we will insert page BR 2.

(The page referred to is as follows:)

General investigations—Hawaiian investigations

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Hawaiian Investigations Office: Molokai and Waimea projects.	Territory of Hawaii	$50,000			$50,000		Funds from the general fund are requested to initiate investigations of two projects in the Hawaiian Islands as authorized by Public Law 634, approved Aug. 23, 1954,
Total cost, Hawaiian investigations		50,000			50,000		
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.							
Total obligations					50,000		
Method of financing:							
Allocation of appropriation							
Prior year balance available							
Contributions							
Allocation of appropriation requirements					50,000		

Mr. EVINS. You are asking for $50,000 for general investigations there. Has this been authorized by law?

Mr. BENNETT. Yes, at the last session of Congress. They passed a law giving authority to the Secretary of the Interior to make investigations of the three projects named in the act, the Waimanalo project, the Molokai project, and the Waimea project on the Island of Hawaii.

Mr. EVINS. We thank you gentlemen very kindly for your statements.

MONDAY, MAY 2, 1955.

RIO GRANDE AND GULF BASIN

WITNESSES

DEPARTMENT OF INTERIOR

SIDNEY D. LARSON, DIRECTOR, DIVISION OF BUDGET AND FINANCE
E. G. NIELSEN, ASSISTANT COMMISSIONER, BUREAU OF RECLAMATION
R. W. JENNINGS, REGIONAL DIRECTOR, AMARILLO, TEX.
F. E. DOMINY, CHIEF, IRRIGATION DIVISION
A. R. GOLZÉ, CHIEF, PROGRAM COORDINATION AND FINANCE DIVISION

CORPS OF ENGINEERS

BRIG. GEN. E. C. ITSCHNER, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS
COL. J. U. ALLEN, ASSISTANT CHIEF OF CIVIL WORKS FOR RIVERS AND HARBORS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL
COL. W. F. POWERS, CHIEF, OPERATIONS DIVISION, CIVIL WORKS
HARRY COHEN, PROGRAM BRANCH, CIVIL WORKS
M. S. GURNEE, OPERATIONS DIVISION, CIVIL WORKS
EARLE H. JONES, JR., PLANNING AND DEVELOPMENT DIVISION, CIVIL WORKS

Mr. EVINS. The subcommittee will consider this afternoon the Rio Grande and Gulf Basin project, with a justification by the Corps of Engineers and the officials of the Bureau of Reclamation, Department of the Interior.

We are glad to welcome you gentlemen again.

The total requested is $18,521,600 for the Rio Grande and Gulf drainage area, including $11,918,000 for the Corps of Engineers and $6,603,600 for the Bureau of Reclamation.

We will insert the summary table and other fiscal data in the record at this point.

(The information is as follows:)

Rio Grande and gulf, budget estimate, 1956

Appropriation	Corps of Engineers	Interior-reclamation
General investigations	$103,300	$870,000
Advance engineering and design	625,000	
Construction	6,890,000	4,711,000
Operation and maintenance	4,299,700	1,151,600
Total	11,732,000	6,732,600

BUREAU OF RECLAMATION, CONSTRUCTION AND REHABILITATION

Actual unobligated balance, June 30, 1954, and Mar. 31, 1955, and estimated June 30, 1955, Rio Grande and Gulf Basin

Project	Actual unobligated balance, June 30, 1954	Actual unobligated balance, Mar. 31, 1955	Estimated unobligated balance, June 30, 1955		
			Field estimated as of Mar. 31, 1955		
			Deferred work	Savings	Total
Carlsbad, N. Mex.		$168,832			
Middle Rio Grande, N. Mex.		297,310			
Rio Grande, New Mex.-Tex.	$272	29,380	$6,700		$6,700
Drainage and minor construction	2,794	5,286		$2,700	2,700
Total, Rio Grande and Gulf Basin	3,066	500,808	6,700	2,700	9,400

CONSTRUCTION, CORPS OF ENGINEERS

Unobligated and unexpended balances, Rio Grande and Gulf Basin

Project	June 30, 1954		Mar. 31, 1955		June 30, 1955 (estimated)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Navigation:						
Houston Ship Channel	0	0	0	0	0	0
Port Aransas-Corpus Christi Waterway	0	0	$388,899	$389,092	$1,500	$275,000
Alteration of bridges: Corpus Christi Bridge	0	0	0	0	0	0
Flood control:						
Rio Grande Floodway	$91,024	$322,302	117,128	339,613	17,000	92,500
Dallas Floodway	303,181	399,871	117,966	568,516	[1] 0	[1] 0

[1] Includes $250,000 loaned to project.

Mr. EVINS. Colonel Starbird, I understand you will present the general statement.

Colonel STARBIRD. Yes, sir; with your permission.

GENERAL STATEMENT

Mr. Cohen will point out the locations on the map, sir.

The Rio Grande-Gulf Basin encompasses 326,700 square miles and includes the greater portion of Texas and New Mexico and small portions of Colorado and Louisiana. Topographically, the western

area of the basin is dominated by the Rio Grande and its tributaries, particularly the Pecos. This river is the second longest in the United States, 1,800 miles in length and fed in part by snowmelt. To the east of the Rio Grande lie seven other important rivers—the Nueces, the Guadalupe-San Antonio, the Colorado of Texas, the Brazos, the Trinity, the Neches, and the Sabine, all emptying directly into the gulf and all dependent upon rainfall for their flow. Across the mouths of all of these run the interconnecting waterways of the gulf and intracoastal canals.

Terrain, rainfall, and population density vary tremendously in this immense region.

To the west, along the Rio Grande and Pecos, elevations rise to 14,000 feet. The topography is rugged and rainfall averages in some localities as low as 10 inches per year. The major problem here is one of conservation—with flood control from infrequent but torrential downpour or snowmelt, a secondary, but also serious, problem. In this area, the scarcity of water is the limiting factor of any kind of economic expansion. The flow of the Rio Grande and its tributaries is now fully appropriated and no water is available to support expansion without further conservation.

Toward the south and east, the land flattens into an eroded plateau and the low coastal plain. Rainfall becomes heavier, reaching an average of 50 inches in Louisiana. Population, density, and industrial development are heavy and have increased phenominally in recent years particularly along the gulf coast. Here the primary needs are for improved navigation, flood control, and hydroelectric power. Even here, however, there is a real need in many sections for conservation storage.

IRRIGATION

The major construction activity of the Bureau of Reclamation to date has been along the middle Rio Grande, its headwaters, and the Pecos. Here it has brought into being the important multiple-purpose Elephant Butte system of 2,200,000 acre-feet and with installed generating capacity of 24,300 kilowatts, together with two smaller reservoirs on the Pecos. Here too the Bureau has constructed or rehabilitated storage and water conveyance facilities to serve over 215,000 acres. Work is underway to improve such facilities for some 122,000 additional acres on the middle Rio Grande. To the east, the Bureau has completed the Marshall Ford Dam on the Colorado River to Texas, while the authorized valley gravity project remains to be initiated. These developments and others now being considered are planned for multiple-purpose benefits where feasible to include assistance to flood control and navigation. Those on the Rio Grande are planned also to function in coordination with lower Rio Grande developments of the International Boundary Commission.

NAVIGATION

The problems associated with navigation consist principally of developing channels to keep pace with the rapidly developing industrialization of the gulf coast and with the increased size and draft of vessels. The authorized program consists of 9 deep water channels

and 16 shallow draft waterways, the latter of which includes the highly important Gulf Intracoastal Waterway.

Improvement remaining for accomplishment includes 95 miles of the 200 miles of authorized deep-water channels and 100 miles of the 810 miles authorized shallow-draft channels.

The importance of these waterways to our national welfare cannot be overemphasized. Over them moves a tremendous tonnage of critical commodities. Total of 173,292,000 tons of commerce was handled by projects in Texas in 1953 or nearly 20 percent of the Nation's total.

FLOOD CONTROL

Serious floods occur annually and serious threats still exist throughout this great region. As an example, the average annual damage without any flood protection is estimated at $34 million. Floods on the Brazos alone have cost 500 lives in 45 years and recurrence now of the flood of record would cause damages estimated at $92 million. In Albuquerque, some 50,000 to 100,000 people live and work behind levees which would protect against 10,000 to 30,000 cubic feet per second. Yet an historical flood reached 100,000 cubic feet per second. The Corps of Engineers program for flood control is designed to protect the most vulnerable urban areas and highly developed agricultural plains. It includes 26 authorized reservoir projects and 15 local flood protection projects. Below the reservoirs lie 4,800,000 acres of flood plain while within the area protected by the local flood protection works is a total population of about 2 million people.

Of the authorized program, 12 reservoir and 4 local protection projects have been completed. Two local flood protection projects for highly developed and vulnerable areas are currently under construction.

Allocations of costs to flood control on the six Bureau of Reclamation projects in the basin are substantial. The cost allocation to flood control on the remaining uncompleted middle Rio Grande project amounts to 48 percent. In addition to providing flood protection on the middle Rio Grande project, the Bureau is now enlarging the completed Alamogordo Dam of the Carlsbad project to provide increased spillway capacity.

OTHER FUNCTIONS

The recent drought has reemphasized the great need for conservation storage throughout the basin. Storage for municipal and industrial purposes as well as for agriculture is urgently needed. Such storage is incorporated into flood control and water conservation reservoir projects on a reimbursable basis where it is required and justified. Some 770,000 acre-feet in four Corps reservoirs is already available.

Multiple purpose Bureau of Reclamation projects provide incidental benefits which include recreation, silt retention and fish and wildlife habitat.

Testimony will be given later on projects in the President's budget for fiscal year 1956, which provides for continuation of construction at Dallas, Albuquerque, the Tule Lake extension, and the Houston ship channel; for initiation of a bridge relocation at Corpus Christi; and for certain survey and planning work.

POWER

The projects constructed by the Bureau of Reclamation in the basin include power generating facilities at the Elephant Butte power development of the Rio Grande project, which is virtually completed and in service. No additional projects involving power facilities are presently authorized or proposed on the lower Rio Grande except those of the International Boundary Commission. The Bureau is marketing agent for the power generated at Falcon Dam build by the IBC.

Incidental to the primary purposes for navigation and flood control, 3 of the authorized reservoirs of the corps have provision for hydroelectric power with a total planned installed capacity of 93,900 kilowatts. One of these projects with an installed capacity of 30,000 kilowatts has been completed.

CONCLUSION

In developing their programs, Federal agencies have worked in close collaboration with State, county, and local authorities and with other interested Federal agencies. The views of all such organizations are solicited and incorporated into the program thus providing for fullest comprehensive development. The importance of the Rio Grande and the gulf coastal basins to the economy of the Nation is without question. Federal improvements already completed have benefited the area tremendously. Yet the basin's growth in population and industry has been most rapid and there is great need for continued Federal construction.

Mr. EVINS. Thank you, Colonel Starbird, for your very fine statement. I am sure that the committee could endorse most of what you have said, particularly the concluding remarks.

The basin's growth in population and industry has been most rapid and there is great need for continued Federal construction.

I notice, just as a general observation on your statement, that you talked about the cost of lives over a period of 45 years. As a matter of fact, this area has been suffering from a drought and dry spell for the past 4 or 5 years. There have not been any serious floods in the past 4 or 5 years, have there?

Colonel STARBIRD. There have been serious floods, sir. They are generally in the eastern part of this basin.

You are absolutely correct; they have had a serious drought there for several years. On the Rio Grande the drought has extended now about 13 years.

General ITSCHNER. And yet just recently, sir, on the Rio Grande they had the flood of record in certain areas. The floods are very flashy in that part of the country and they might very well come in a long-term period of drought.

PRINCIPAL PROJECTS

Mr. EVINS. Your major installations are along the urban areas and in the principal agricultural flood lands?

Colonel STARBIRD. They are to protect those, sir.

Mr. EVINS. Will the gentleman at the map point out for the committee the principal projects underway and the principal projects you plan to do work on in the next year?

Colonel STARBIRD. The principal ones underway, sir, of the Corps of Engineers, include the flood control works at Albuquerque for the Rio Grande Floodway; also at Dallas an extensive floodway is under way below the cluster of 3 black and one red reservoirs in the north central part of Texas; in addition, 2 navigation projects are underway; that of Tule Lake channel extension and the Houston ship channel in the vicinity of Houston.

General ITSCHNER. The Tule Lake extension is at Corpus Christi.

Colonel STARBIRD. And there is the initiation of a bridge alteration at Corpus Christi.

In addition, in the corps' program are several planning and survey items.

Mr. EVINS. Colonel, you pointed out that there are some 26 authorized reservoir projects and 15 local flood control protection projects, and 12 of these have been completed. That is less than one-half. How long has this program of construction been underway?

Colonel STARBIRD. The first elements of the flood control construction program were authorized in 1936, sir. Construction, I believe, started around 1938 or 1939.

Mr. EVINS. Are you pretty far advanced on your reservoir and local protection projects?

Colonel STARBIRD. They are fairly well along, sir, but we have very important ones still to be constructed.

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

Mr. EVINS. We will insert in the record at this point pages 1 and 2, under "General investigations."

(The information is as follows:)

RIO GRANDE AND GULF RIVER DRAINAGE AREA

JUSTIFICATION OF ESTIMATE

1. Examinations and surveys

(*a*) *Navigation studies.*—The amount of $11,400 is requested for prosecution of 3 studies in the Rio Grande and gulf drainage area. This amount will permit completion of 2 reports and progress on the remaining 1.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Texas:				
Gulf-Intracoastal Waterway, Port Mansfield, Tex	$9,500	0	$3,800	$5,700
Gulf Intracoastal Waterway, San Bernard River, Tex	13,000	$11,000	2,000	0
Port Aransas-Corpus Christi Waterway, Tex	28,700	23,100	5,600	0
Total	51,200	34,100	11,400	5,700

(*b*) *Flood control studies.*—The amount of $91,900 is requested for prosecution of 6 studies in the Rio Grande and gulf drainage area. This amount will permit completion of 3 studies and continuation of 3 others.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
New Mexico:				
Rio Grande at Socorro	$25,000	$14,100	$10,900	0
Spring River and Rio Hondo	15,000	0	15,000	0
Texas:				
Devils River at Ozona	37,000	0	7,000	$30,000
Trinity Bay SCD	59,700	41,400	18,300	0
Trinity River-Lake Liberty	210,000	49,100	20,700	140,200
Trinity River-Richland, Chambers and Cedar Creeks	98,700	58,700	20,000	20,000
Total	445,400	163,300	91,900	190,200
Grand total	496,600	197,400	103,300	195,900

Mr. EVINS. It is noted that the Corps of Engineers is requesting $103,300 for general investigations. This involves initiating studies on 3 projects and continuing studies, as I understand it, on 6 others. Colonel Starbird, would you give us a general statement on the need for these new studies?

SPRING RIVER AND RIO HONDO

Colonel STARBIRD. The new studies, sir, are entirely flood-control studies. The first one is on the Spring River and the Rio Hondo in New Mexico. That river and the Rio Hondo both traverse part of Roswell, N. Mex. We had an extremely serious flood there this last year, with damages in the neighborhood of $2 million, and several lives were lost.

This investigation would be a preliminary examination and would be initiated and completed with the sum of $15,000 requested in fiscal year 1956.

DEVILS RIVER AT OZONA

The second of the two studies initiated would be that at Devils River at Ozona. That also is a location where we had several deaths in a storm last year. To be exact, there were 13 persons killed. That river is a tributary of the Rio Grande.

I will ask Colonel Allen to cover the navigation new start at Mansfield.

PORT MANSFIELD, TEX.

Colonel ALLEN. That is a project, sir, for small-boat facilities; not recreation but to serve the shrimping industry in this area. There is an extensive shrimping industry in this portion of Texas, and they have requested investigation to determine whether or not it is economically feasible to develop the harbor of refuge and a port for that industry.

TRINITY RIVER, TEX.

Mr. EVINS. On the Trinity River in Texas the Department of Agriculture and the Corps of Engineers both have flood-control programs. I believe the Department of Agriculture project is under construction.

What is the relationship between this program of the Department of Agriculture and the studies which you are proposing to make.

Colonel STARBIRD. The specific study involved, sir, is that of the Trinity River; Richland, Chambers, and Cedar Creeks.

Here we have completed an investigation of one of the creeks, Richland Creek. The Department of Agriculture also had completed an investigation of the area.

One corps reservoir is now authorized there.

The field agencies of the corps and the SCS are coordinating with respect to further development of Richland Creek. We have had no planning money there as yet so we have not been able to work out all of the details on that specific creek.

On Chambers Creek, an adjacent creek, the SCS is investigating, and so are we, at the present time; they taking the upstream area and we basically the downstream area, and tailoring our investigations together.

The funds requested for fiscal 1956 are to continue this investigation in coordination with the SCS investigation.

Mr. EVINS. It is not considered to be in any respect overlapping?

Colonel STARBIRD. They are not overlapping, sir.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. Under "Advance engineering and design," the Corps of Engineers is requesting $620,000 for planning on 10 projects.

We will insert in the record at this point the tabulations of these projects.

(The information is as follows:)

RIO GRANDE AND GULF

JUSTIFICATION OF ESTIMATE

Advance engineering and design

Funds in the amount of $620,000 will be applied to advance engineering and design on 10 projects in the Rio Grande and Gulf drainage area. Three of these projects will be brought to the stage where construction can be initiated. The 10 projects on which planning will be accomplished have a total estimated cost of $142,170,000 and consist of 1 navigation project and 9 flood-control projects.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects:				
Texas, Gulf Intracoastal Waterway: Guadalupe River, Channel to Victoria	$6,620,000	$200,000	$5,000	[1] $6,415,000
Flood-control projects:				
New Mexico:				
Albuquerque	7,500,000		60,000	7,440,000
Artesia	570,000		25,000	545,000
Chamita Reservoir (Abiquiu)	12,600,000	354,000	75,000	[1] 12,171,000
Two Rivers Reservoir	6,050,000		50,000	6,000,000
Texas:				
Buffalo Bayou	38,900,000	8,625,000	100,000	30,175,000
Canyon Reservoir	11,900,000	559,000	60,000	[1] 11,281,000
Navarro Mills Reservoir	4,980,000		50,000	4,930,000
San Antonio	14,350,000		100,000	14,250,000
Waco Reservoir	[2] 38,700,000		100,000	38,600,000
Total flood-control projects	135,550,000	9,538,000	620,000	125,392,000
Multiple-purpose projects including power	None	None	None	None
Reexamination of projects in "Deferred for restudy"	None	None	None	None
Grand total, advance engineering and design	142,170,000	9,738,000	625,000	131,807,000

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

[2] Includes local contribution for conservation storage, amount not yet determined.

Mr. EVINS. I understand that local cooperation is required on several of these projects. Will you please specify on which ones local cooperation is anticipated, and give the nature of these nine new projects.

GULF INTRACOASTAL WATERWAY

Colonel ALLEN. One of those on the list, Mr. Chairman, is the Gulf Intracoastal Waterway Channel to Victoria. That is an authorized project with a high degree of local contribution. A number of changes have occurred in this project since its authorization, in that additional utilities have been constructed over the waterway, and it is desired to spend more money this year in revising the general design memoranda to reassess the amount of local contribution so that local interests can be made aware of exactly what their obligations are now under the existing conditions.

ALBUQUERQUE, N. MEX.

Colonel STARBIRD. The second project you have is the one at Albuquerque, N. Mex. We have underway now a project to protect the city of Albuquerque from front-line flood. This project is to protect the city against the torrential outflow that comes from the Sandia Mountains directly behind the city of Albuquerque. Local cooperation is required both in the furnishing of lands, rights-of-way, and relocations, and a small contribution for land enhancement. The local people are now collecting the funds. They have organized a soil-conservation district and we expect no difficulty in their coming forward with the necessary cooperation.

ARTESIA

The third project is that of Artesia, a city of 8,200 persons located on a tributary of the Pecos River. That city has had a very serious flood this last year.

Here, again, the required contribution is that of lands, rights-of-way, public relocations, and maintenance and operation of the project. Informally the local people have indicated that they are capable of and willing to come up with the necessary cooperation.

CHAMITA RESERVOIR

The fourth project you have is the one for the Abiquiu of the Chamita reservoir system. That requires no local cooperation itself, although it is part of an overall comprehensive plan and part of certain other elements call for cooperation.

TWO RIVERS RESERVOIR

The fifth project is that of the Two Rivers Reservoir. This reservoir is one above the city of Roswell, N. Mex., and above the Roswell Air Force Base. It is a relatively small reservoir project whose benefits are limited to particular areas.

In this case the local people are required to furnish the necessary lands, to maintain the access road, and to maintain the channels below

the project. Here, again, the local people have indicated that they will organize and furnish the necessary cooperation. This is the first year of planning.

BUFFALO BAYOU

The sixth project is that of Buffalo Bayou, a bayou which causes heavy damage in the city of Houston. Here there is a very heavy contribution by the local people for lands, rights-of-way, relocations, and maintenance and operation. They are organized and want to go ahead as soon as possible with the project.

CANYON RESERVOIR

The seventh project is that of Canyon Reservoir, in the Guadalupe River in central western Texas. That reservoir is one that has substantial conservation storage planning in it. The storage is as authorized in the latest authorization, the 1954 Flood Control Act.

The local people have indicated that they have the funds available and wish to make that contribution so as to start the project as soon as possible.

NAVARRO MILLS RESERVOIR

The eighth project is one for the construction of a small reservoir on a tributary of the Trinity River. It is on Richland Creek which I mentioned earlier.

Here, again, the reservoir has a substantial allowance for conservation. The local interests will be expected to pay about 35 percent of the total cost because of the conservation benefits that are there and the enhancement benefits. They are now organizing so that they will be able to make the necessary contribution.

SAN ANTONIO IMPROVEMENTS

The ninth project is that of the San Antonio channels, mainly within the municipal area of San Antonio, Tex. Here the project requires the furnishing of the normal cooperation of lands, rights-of-way, relocation, and maintaining and operating the project upon completion. It requires also a contribution in cash in view of the enhancement concerned.

The city is ready to go ahead with the necessary cooperation.

WACO RESERVOIR

The tenth and last project is that of the Waco Reservoir, a reservoir just above the city of Waco and one which will flood out the Waco water supply reservoir, a reservoir which is now inadequate to meet their needs.

In this case also there is a substantial contribution toward the project, estimated at $4 million to $6 million, required. The people of Waco informally have indicated that they are prepared to go ahead, sir.

LOCAL COOPERATION

Mr. EVINS. The Corps of Engineers is quite expert, and they have had a history of vast experience. They are one of our older corps of the services.

I judge that on each of these projects, before you initiate them, you have extensive talks with local people as to their cooperation and participation?

Colonel STARBIRD. That is correct.

Mr. EVINS. Or do you just go out and survey a project and initiate it without consulting with the local people?

Colonel STARBIRD. No, sir; we consult with them at the time that the authorization surveys are being drawn up. The recommendation for cooperation is included in the project document at the time the document is submitted to the Congress.

Mr. EVINS. What uniformity of procedure do you have in the way of requesting local participation, and deciding how much local participation there shall be? In some instances you say there is as much as 35 or 45 or 50 percent local contribution. In other instances there is practically none. What is the formula? What is the basis for your local agreement as to the amounts of contribution and participation?

Colonel STARBIRD. In the case of the local flood-protection projects, sir, our current policy is to recommend that the local interests pay for the lands, rights-of-way and relocations, other than railroad relocations, and to maintain and operate the project upon completion.

Now, in addition, when there is readily identifiable enhancement benefit that comes from that project we recommend that one-half of the percent of the cost attributable to enhancement be borne by the local interests.

I believe that a substantially parallel set of procedures is used for navigation projects. I will ask Colonel Allen to develop that.

In the case of reservoirs the benefit generally cannot be uniformly allocated nor uniformly determined to apply to any one particular group; or it is not uniformly applicable to all the people in the valley. For such projects it is normal that all costs be borne by the Federal Government. However, in the case of certain specific reservoirs where the benefit is quite local or where the enhancement is quite local and is capable of being readily identified then some measure of local cooperation is recommended, sir.

Colonel Allen, do you want to develop the navigation part of it?

Colonel ALLEN. There are two situations in navigation projects where local interests are asked to contribute in cash to the cost of the project.

In the last authorization bill there were several projects that served one user. One terminal or one user would obtain the benefit from the channel or the improvement authorized, and in those cases 50 percent of the improvement was assessed against the one user.

The recent Authorization Act also took cognizance of what we choose to call our small-boat formula, which provides a means whereby local interests contribute in cash to the cost of harbors constructed primarily for recreation. The costs of those harbors are assessed to the Federal Government and the local interests in proportion to the benefits which each derive from the improvement.

The standard type of navigation project where the benefits are all general includes the usual hold-and-save clause, the provision of lands and rights-of-way, provision of suitable terminal facilities open to all, and those items of local cooperation have been in our projects for a number of years.

Mr. EVINS. Let us say that in the development of a given area or valley by the Corps of Engineers that you later from your studies determine that the building of an additional dam or reservoir is feasible and desirable. Let us assume that certain of the people in the area favor it and others do not favor it. Then how do you resolve your decisions in instances of that kind?

Suppose there are a large number of local people who are opposed to one of your projects. Do you go right ahead and build the project in accordance with your plans, under condemnation procedure?

Colonel STARBIRD. No, sir; there would be two times when the opposition might be revealed, sir. The first time would be during the survey stage.

Now, if there was substantial opposition we, of course, would try during the survey period to resolve that as far as was possible and determine a solution which was acceptable to the people.

Now, then, when we finally reached a point where we decided that this was the best solution and there was still some opposition, that oppostion would be mentioned in the project document. Of course the document, prior to the time it is sent to the Congress, would be sent to the official representative of the State for comment. Should the State come back and favor the project then, normally, we would forward it on to you with a favorable recommendation, pointing out that the State approved the project. If it were unfavorable from the point of view of the State, although I cannot say what we would do in every case, there have been cases for which I can remember we recommended no improvement at that time.

Mr. EVINS. We must have the vision and the foresight and the skill and ability of the Corps of Engineers and others to do these jobs. I recognize that you have to overcome difficulties and obstacles and objections. I wanted to just get your procedure for the record.

Colonel STARBIRD. I mentioned that that was the first time. The second time, of course, is the time we budget for a project, sir. Again, I cannot speak for every case, but from the point of view of our current practice we do not recommend projects for the budget when we know there is sizable and important opposition to the project.

ALBUQUERQUE

Mr. EVINS. To what degree has the flood problem you state exists at Albuquerque been caused by the people in the area almost ignoring the flood hazard and constructing buildings and residences on the flood plain even near the dry-bed streams?

Colonel STARBIRD. Sir, the problem in Albuquerque is twofold. The Rio Grande, particularly in the reach in which Albuquerque lies, is in a very arid area. Albuquerque itself was first settled in the latter part of the 16th century by the Spaniards, and they naturally went in and settled in an area where the land was fairly damp and where it could be developed. Throughout history the development has occurred in that particular area down on the flood plain where there was water.

Now, about 60,000 to 100,000 persons live or work down on that flood plain.

In addition to that, when Albuquerque started to expand, particularly in view of certain defense installations that came in, it had to

expand up onto the heights. Above Albuquerque some 10 to 15 miles from the river itself the mountains rise to about 5,000 feet above the flood plain. It is very precipitous.

As they expanded up onto the flat plain that lies below those mountains they did overlap somewhat into the very, very slight depressions that formed the channels by which water came down from the mountains. They, to some extent, aggravated their own problem in that manner.

However, one condition of the project that you have before you which has already been described for financing, planningwise, this year, is that the local people will take the necessary steps to protect those channels coming down to our existing works. I understand from a recent check with our district engineer that they are running the necessary surveys, collecting the money, and have established a form of zoning in the area.

ARTESIA

Mr. EVINS. Relative to the Artesia project the Corps of Engineers is requesting $25,000. This is a project in New Mexico with a total estimated cost of $570,000. Here, again, the people have gone out and flagrantly built in the flood plain.

What assurance do we have that this will not be continued? You state in your planning report that such will continue to be the case. Why should the Federal Government step in and continue to expend money when people refuse to help themselves?

Colonel STARBIRD. In the Artesia project, sir, the project contemplates the building of a diversion dike, and channel, to carry the water around the developed area of the city.

It is true that this city has grown very, very fast of late. This particular area is the center of the petroleum interests and no zoning is needed as such within the area that our project protects, for there is no water which goes through the city from the project. The project is designed to pick up the water outside the city and carry it in the most economical manner around the city.

ABIQUIU

Mr. EVINS. The Abiquiu project is the next project for consideration, and you have included an uncontrolled outlet in this dam?

Colonel STARBIRD. Sir, the Corps of Engineers recommended in 1947 this plan for the Middle Rio Grande Valley. It included several features to include the Chamita Reservoir, a reservoir to control the Rio Chamita, and that, incidentally, is the same stream upon which Abiquiu is located.

When the plan was brought to Congress, there were certain objections to it, largely voiced by downstream States, and as a result the Congress approved the comprehensive plan with certain limitations.

With respect to the Chamita Dam, particularly, the corps had recommended a dam of 945,000 acre-feet. The Congress limited storage by stating that the gates would be left off that project until such time as the State of New Mexico acquired credit under the compact; in other words, was delivering a greater amount of water downstream than required by the compact.

Subsequent to the authorization of the reservoir, as reduced, we further examined the sites and we found that to build the Chamita Reservoir now would cost around $36 million, but that we could build two smaller reservoirs which would have the same flood-control effectiveness—a small Chamita at the old Chamita site, plus a small Abiquiu at a site about 15 miles upstream, at a cost, which was at that time roughly estimated at $10 million less than the cost of a high Chamita, somewhere in the neighborhood of $26 million.

We also reported to this committee last year, and stated that we were continuing to plan on that basis. Subsequent to our report to the committee of last year, we initiated coordination of the States concerned to determine whether this plan was fully acceptable to all of them.

The State of Texas pointed out that there was a restriction on the total storage which could be put into the revised plan for Chamita Reservoir, that restriction being 700,000 acre-feet.

We have a very unusual situation at the Abiquiu site. It is a site where you can build a big reservoir with a spillway on the top much cheaper than to build a small reservoir, and put a spillway by gulleying the shoulder of the particular site.

At the time of negotiation, it was agreed that if we put in an uncontrolled outlet so that the total storage on the Chamita would meet the storage that was approved by the Congress, then that would be acceptable to all of the States concerned. The new plan before you and which you have for consideration, includes such an outlet. The total estimated cost of the overall project with that outlet is now about $27 million.

In other words, about $9 million cheaper than putting in the specific structure, as authorized by the Congress.

Mr. EVINS. Who would benefit the most from this, New Mexico or Texas?

Colonel STARBIRD. The State of Texas would benefit mostly from it.

Mr. EVINS. You also have a controlled outlet. In other words, the Corps of Engineers controls the storage with the control outlet only?

Colonel STARBIRD. Yes, sir; specifically, we could control it with a controlled outlet only. I might mention, sir, by putting in the uncontrolled outlet, we reduce slightly the size of the spillway concerned, however it would not compensate for the increased cost.

Mr. EVINS. How much is the increased cost?

Colonel STARBIRD. We estimate it now, sir, at about $950,000 out of the total cost of the outlet works, which is somewhere around $4.4 million overall. However, one reason for the money recommended this year, is that we have under investigation the possibility of installing a more economical installation.

Mr. EVINS. How many years have you been studying this entire project in this area?

Colonel STARBIRD. The project as a whole was authorized in 1948, and amended in 1950. The original allocation of funds to Chamita Reservoir, sir, was in fiscal year 1950.

Mr. EVINS. If you can control it with your controlled outlet, is not the uncontrolled one surplus to your needs?

Colonel STARBIRD. The uncontrolled outlet is not needed for the physical functioning of the project. It is required because of the

condition of the original authorization and the necessity that we operate the reservoir in compliance with the conditions of the water compact.

Mr. EVINS. I see. You just stated that you could do that with a controlled outlet, as I understood you to say, Colonel.

Colonel STARBIRD. I would like to clarify that remark.

(Discussion off the record.)

Mr. EVINS. Does not the State of Texas trust the Corps of Engineers to operate this project in conformity with the terms of the compact?

Colonel STARBIRD. I believe that the State of Texas trusts the Corps of Engineers to so operate, sir. I am giving an opinion of another man's trust.

Mr. EVINS. If they do, then you do not need the uncontrolled outlet.

Colonel STARBIRD. One condition of reverting to the less expensive project was the putting in of an uncontrolled outlet. They have also said that if we would prefer, we can put in specifically what was authorized by the Congress, or we can put in a project at Abiquiu with a spillway so that the storage would not exceed 700,000 acre feet.

Mr. EVINS. To repeat, Colonel, and for the record, the Corps of Engineers has been of necessity compelled to alter its original views, its engineering ideas, and plans to accommodate and to comply with the wishes of the interstate compact and specifically the State of Texas. Is that correct, or substantially correct?

Colonel STARBIRD. We have had to put in the uncontrolled outlet to meet the compact wishes.

Mr. EVINS. To comply with the compact wishes, how much additional cost from an engineering point of view do you estimate has resulted?

Colonel STARBIRD. Somewhere in the neighborhood of $950,000. There is a possibility that that could be reduced, sir.

CANYON RESERVIOR

Mr. EVINS. In the Canyon Dam, you have a partnership project, with local interests authorized to construct the hydroelectric power facilities?

What arrangements have been made on this project, and what assurances have you received from the local interests, and how would it operate?

Colonel STARBIRD. This project, sir, has a total storage of 741,000 acre-feet. Of that total, 346,500 is required for flood control, 366,400 for conservation, and 28,100 for sedimentation purposes.

The authorizing act states that nothing will be done to interfere with the necessary storage for these two purposes. There is a question as to whether this reservoir will hold all of the conservation water that is desired. To explain that, it is in a limestone area. From a flood-control point of view, it need not hold water for extended periods of time. If the water goes into the ground, it will do no harm from the flood-control point of view; but from the conservation and from the power point of view, however, it could be very damaging if you lose the water concerned.

Even in spite of this situation, the law provides and the people offered to pay the incremental cost toward the construction of the project. In other words, for the added storage involved, they will

bear that cost. They also agreed, and so testified at the time of the authorization last year, that upon completion of the project and upon making a reasonable determination of what the conservation benefit is, then they would adjust the payment so as to pay by what we call the "separable cost remaining benefit method."

This would lead to an even greater contribution to be paid over a period of time later.

Now, the law further provides that hydroelectric power facilities can be installed in the dam either by the Federal Government, or by the local interests, at a future time, with the cost being borne by the local interests.

I might state that the local interests plan a series of dams and hydroelectric developments in this area, and it will take a further period of time to determine whether (1) our structure will retain the water to let them develop an economic project, and (2) whether the project will fit into their overall plan of development.

The State has established a water conservation district, and that district has indicated that it has the $1,400,000 available to go ahead with the contribution toward the project.

Mr. EVINS. It is not planned at this stage that the Corps of Engineers shall construct the hydroelectric power facility?

Colonel STARBIRD. It is not, sir.

Mr. EVINS. And, money is not requested for studies in that connection?

Colonel STARBIRD. It is not, sir.

Mr. EVINS. That information is easily available to you from an engineering point of view, and can be passed on to those interested, based upon your past experience, and otherwise?

Colonel STARBIRD. Added planning would be required if we determined at some future time that there is a good possibility of a justifiable power project there.

Mr. EVINS. Do you feel at this stage that local interests are interested in developing the hydroelectric power at this point?

Colonel STARBIRD. I think they are, sir; if it turns out to be feasible.

NAVARRO MILLS RESERVOIR

Mr. EVINS. What is the relationship between the Navarro Mills Reservoir project and the proposed Department of Agriculture project in the same area?

Colonel STARBIRD. The Navarro Mills project is a reservoir about one-third of the way from the mouth of Richland Creek to its higher tributary. The Department of Agriculture completed an investigation of this area in, I believe, 1950 or 1951, and their plan noted that we were considering a downstream reservoir at a certain site.

We had our investigation underway, and in our investigation we determined that a site, slightly above the earlier site, was the better for gaining overall flood control of the most vulnerable areas.

In the meantime, the Department of Agriculture had forwarded its plan to the Congress, and we forwarded our plan to the Congress or, rather, to the Bureau of the Budget, and the Congress authorized the reservoir recommended by the corps in the last Flood Control Act.

At the time we forwarded the plan to the Bureau of the Budget, we stated that further detailed coordination of existing sites would be worked out with the Department of Agriculture, during the planning stage.

The funds here requested are the funds with which to initiate planning. There have been very pleasant and favorable relationships between the SCS, the State conservation representative, and our district engineer with respect to continuing coordination in this particular work.

Mr. EVINS. The local interests are, as I understand it, required to make payments to the Federal Government, based upon utilization of the downstream lands. Yet, no organizations have been formulated, based upon all indications from your planning report. What efforts have been made by local interests in this respect, and what success do you anticipate?

You say you are cooperating fine with the Department of Agriculture, but what indications do you have thus far that local organizations will be formed to make payments on the utilization of the project?

Colonel STARBIRD. There has been no organization, as such, formed to date, to make the contribution, some 11 percent of the construction cost, for land enhancement. The local people are at work organizing to pay some 25 percent that they will get through conservation benefits. Also, the State of Texas has under consideration a plan for creating an overall organization on the Trinity River. At the present moment, it has only been about 8 to 10 months since this project was authorized. We believe that in view of the overall benefit to the area, the necessary organization will be created.

WACO DAM

Mr. EVINS. Concerning the Waco Dam, you are requesting funds to initiate planning on this project.

What is the benefit-cost ratio for this project alone?

Colonel STARBIRD. The staff, sir, has pointed out that it is desirable to produce for the committee's analysis a separate benefit-to-cost ratio for this project and that was done over a period of time. They have pointed that out to us. We have made an attempt to develop a benefit-to-cost ratio. We have done that with the information available.

This project was authorized from a study completed in 1949. We have had no money on it since that time, and the funds here requested would start our planning.

We estimate on a distributed basis that the benefit-to-cost ratio will be somewhere in the neighborhood of 1.2 to 1. Now, that is not as accurate as we would like to have it, but we need to do some further planning before we can refine it.

Mr. EVINS. What are your plans for construction on six other projects in this system mentioned in your planning report and in the justifications?

Colonel STARBIRD. The authorization, sir, called for a total of 6 reservoirs and the modification of 1. The modification would add power to the Belton Reservoir, a reservoir already completed.

The terms of the authorizations specify that the addition of power will be at such time as the Chief of Engineers believes that it is economical and appropriate. As far as the other reservoirs are concerned, five in number, it is not possible at the present time to determine exactly which one or which ones will come along first. We do believe that Waco Reservoir has the highest priority. It is needed badly for water supply. It is also needed in view of the fact that it is the only one of the reservoirs that gives immediate protection to extensive urban areas, but specifically, to answer your question, future construction will depend upon appropriations, recommendations by the Bureau of the Budget, and the actual development of the support for the reservoir in the area.

Mr. EVINS. At this time, though, Colonel, by the Corps of Engineers requesting funds for Waco, the corps is in effect telling Congress that we must build the other six projects, if we are to realize the ultimate benefits contemplated for the entire system.

Colonel STARBIRD. No, sir; that is not quite right, sir. To realize the total benefit which will give a high degree of protection to the valley, the several reservoirs should be built. However, the building of just the first one, Waco, will realize very substantial benefits.

In fact, it will realize an annual benefit of about $100,000 a year in Waco proper and in the 84 miles down the main stem to the next main tributary, it will realize about $800,000 per year.

Mr. EVINS. From flood control only?

Colonel STARBIRD. Yes, sir; from flood control only, sir, and there are substantial benefits from the water supply. All of the reservoirs should ultimately be built, but each one realizes a very great benefit when it is constructed.

(Discussion off the record.)

POLICY ON CONSTRUCTION OF POWER FACILITIES

Mr. EVINS. Has there been any change in the policy of the Corps of Engineers with respect to the recommendation for the construction of hydroelectric power facilities in connection with projects which the corps recommends from time to time?

Please tell us, General, historically the policy of the Corps of Engineers, and the development of its point of view in this regard and what if any changes have developed.

General ITSCHNER. I think there has been no basic change in the Corps of Engineers policy with respect to incorporating hydroelectric power facilities in our multiple-purpose projects. We have always studied those projects, having in mind the optimum development of the water resources available which, of course, includes the development of power.

However, from time to time the criteria in connection with the justification of power have changed. Recently, for instance, we have included as part of the cost of a Federal hydroelectric development the value of taxes foregone. The value of taxes foregone is the amount of taxes that would be paid by an alternative privately developed electric generating plant, having the same capacity as the Federal plant which is being studied. As a result of having this cost added, of taxes foregone, to the cost of the Federal project, it becomes more difficult, of course, to justify the Federal project. The

benefit-cost-ratio becomes somewhat less because the effect of those taxes is rather great upon the justification of a hydroelectric project.

Mr. EVINS. You state that recently this change has taken place. Was that the result of a directive from the Chief of Engineers?

General ITSCHNER. That is as a result of agreements in the Inter-Agency Committee, and also as a result of Budget Circular A–47.

Mr. EVINS. When was that issued? Do you recall?

General ITSCHNER. That budget circular was issued at the very end of calendar year 1952—in December 1952.

I think it was the last day or so of the month of December.

Mr. EVINS. Since that time, in your recommendations to the Congress, you have not been recommending to any substantial degree, at least, the building of hydroelectric facilities in connection with Corps of Engineer projects.

General ITSCHNER. I would not say that, sir. We actually have recommended projects, since that time—to have power incorporated in them.

Mr. EVINS. Well, as I said, to any substantial degree?

General ITSCHNER. Well, I think probably that statement is correct—that we have not recommended many projects which have included power.

Mr. EVINS. You do say that this directive makes it more difficult for you to be in a position to do that?

General ITSCHNER. Yes, sir; it does make it more difficult. Actually, I do not think this particular criterion has resulted in many projects not having power since that time.

Mr. EVINS. How does the Corps of Engineers compute the value of taxes foregone?

General ITSCHNER. That is an estimate based upon the value of the alternative powerplant, generally a steam-powered plant in that area, and the tax structure for that area.

Of course, that varies in different parts of the country, and depends upon the taxation laws in effect in that community, and county, and State.

Mr. EVINS. Has it been necessary for the corps to add to its staff some personnel to compute the tax-evaluation problems, and the tax foregone loss?

General ITSCHNER. No, sir; I am sure it has not done that. It is not a very difficult problem. It does require some extra work, however.

Mr. EVINS. As a matter of fact, could you let out some employees because you do not have to recommend the hydroelectric power projects any more?

Could that be possible?

General ITSCHNER. I do not think that it makes that much difference in the personnel requirements that we have. There are too many other factors which are far overriding.

Mr. EVINS. The personnel has not been increased nor decreased because of the directive, but the recommendations have, of necessity, been made more difficult.

General ITSCHNER. It makes it much more difficult to justify hydroelectric projects.

Mr. EVINS. As a matter for the record, the Corps of Engineers does not have monetary authorization to contract for anything except the Waco Dam at this time; is that correct?

Colonel STARBIRD. That is correct, sir.

We have a total monetary authorization authorized of $40 millio for partial accomplishment of this plan.

If the Waco Dam was the first one to be constructed, then furthe monetary authorization would have to be granted before a secon one is constructed.

VALUE OF TAXES FOREGONE

Mr. MURRAY. I just wanted to ask there a few questions on thi value of taxes foregone.

It was my understanding that you add to the contemplated cost o the project the value of local real-estate taxes which would be pai by, say, a private development.

Is that what you do?

Colonel STARBIRD. That is exactly correct, sir; any local count taxes, State, or whatever they may be.

That is done only for the purpose of evaluating the economic justi fication of the project in obtaining this benefit-cost ratio which w discussed.

Mr. MURRAY. In other words, you would estimate the cost of private company which is not there, and which might not be contem plated, and what that company would pay in personal-property taxe or real-estate taxes; is that right?

Colonel STARBIRD. That is correct, sir; the cost to that company fo taxation on a substitute, or alternative powerplant to provide the sam amount of electricity as would be provided by our Federal plant.

Mr. MURRAY. From a purely economical standpoint, is it not tru that when you erect a power project that the real estate which th plant services increases in value so that actually you have an increas in local real estate and personal property taxes, with the project?

Is not that true, or is it true?

General ITSCHNER. We feel certain that the construction of a hydr plant in an area does increase the economy of that area, but it migh not in some localities upstream in the reservoir area. They migh lose enough taxation up there to make quite a difference to them

Mr. MURRAY. But, as an overall proposition, would you not sa that it would increase actually the value of the property? It woul increase the economic conditions throughout the area, and obviously the personal property taxes, and the real estate taxes for that are would be increased.

Is not that true?

General ITSCHNER. Yes; that is true, and we would not build project if it did not have a favorable benefit-cost ratio.

We would not incorporate power into the project unless it, as a increment, would have a favorable benefit-cost ratio.

So, that does mean that there would be a benefit directly to th economy of the area.

There may be at any particular location benefits in addition to tha or secondary benefits, as they are often called, and what you ar speaking of, the development of the area to support the project, an the income of people who work at the project would definitely b secondary benefits which would result in increased taxation.

Mr. MURRAY. When you are determining the value of taxes foregone, do you estimate in making that evaluation the value of potential taxes gained?

General ITSCHNER. No, sir; we do not. We consider only the taxes on the alternative powerplant.

Mr. MURRAY. I see.

General ITSCHNER. We consider only the taxes on the alternative powerplant which would be paid by a private corporation building such a plant.

Mr. MURRAY. Thank you.

Mr. EVINS. Actually, the effect of this directive has only recently been pronounced, or is only now coming into full play. Is that about correct?

General ITSCHNER. I think that that is a fair statement. There were a few projects, I believe, in the 1954 omnibus bill, which were affected by the provisions of Budget Circular A–47, as far as power projects were concerned.

Mr. EVINS. As a matter of fact, they were planned and initiated and then the costs were cut out for those power projects? Is that correct?

General ITSCHNER. Certain of those power projects were planned and the benefit-cost ratios then were changed at the time we presented the projects to the Public Works Committee. In justifying these projects, we did give them the latest thinking in the way of benefit-cost ratios.

Mr. MURRAY. Do you make this addition or this consideration of value of taxes foregone, even though there might not be any private project of the same size contemplated in the area?

General ITSCHNER. Yes, we do, even though there may not be a plant of that type considered at that time in the area, but we do feel that some time, some place there must be a substitute facility constructed to generate that power which we feel is needed, or we would not construct a Federal project.

Mr. MURRAY. I understand. However, I cannot understand how you can have taxes foregone if you do not have something planned there in the first place. That is the thing which I cannot understand.

CONSTRUCTION, CORPS OF ENGINEERS

HOUSTON SHIP CHANNEL

Mr. EVINS. At this point in the record we shall insert pages 11, 12, and 13 of the justifications.

(The pages referred to follow:)

HOUSTON SHIP CHANNEL, TEXAS (36-FOOT DEPTH PLUS WIDENING) (RESUMPTION)

Location.—Channel extending from Galveston Harbor to terminals at Houston, Tex., a distance of about 50 miles.

Authorization.—1948 and 1945 River and Harbor Acts.

Benefit-cost ratio.—2.3 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$7,150,000	
Estimated local cash contributions	0	
Estimated project cost	7,150,000	
Appropriations to June 30, 1954	3,500,000	
Appropriations for fiscal year 1955	0	
Appropriations to date	3,500,000	49
Appropriations requested for fiscal year 1956	500,000	56
Balance to complete after fiscal year 1956	3,150,000	

PHYSICAL DATA

Channels.—Deep water Galveston Bay to 5,000 feet above Baytown—36 feet deep, 400 feet wide, 30 miles long; 5,000 feet above Baytown to mouth Boggy Bayou—36 feet deep, 350 feet wide, 7.9 miles long; mouth Boggy Bayou to turning basin at Houston—36 feet deep, 300 feet wide, 11.1 miles long.

Turning basins.—Houston—36 feet deep, 300 feet to 1,000 feet wide, 4,000 feet long.

Status, Jan. 1, 1955

	Percent completed	Completion schedule
36-foot project plus widening	49	June 1960.

JUSTIFICATION

The Houston Ship Channel is a deep water navigation project serving the needs of seagoing commerce from Houston, Tex., with terminals located along the 25-mile bayou reach between Morgan Point and the Houston Turning Basin. In 1953 over 44,263,704 tons of commerce were moved over this waterway.

The area tributary to the waterway produces chiefly lumber, agricultural products, sulfur, and petroleum. Major industries include the production and refining of petroleum, shipbuilding and repair, steel smelting and fabricating, tin smelting and processing, manufacture of cement, building materials, chemicals, synthetic rubber, and processing of agricultural products.

Commerce on the Houston Ship Channel increased in postwar years from 34,323,800 tons in 1947 to 44,263,704 tons in 1953, a rise of 29 percent attributable to industrial expansion and vigorous local sponsorship. Widening and deepening of the project will benefit commerce by reducing delays and damage from grounding, allowing greater navigating speeds, allowing increased loading drafts, and reducing the danger of collisions through relief of traffic congestion.

FISCAL YEAR 1956

The requested amount of $500,000 will be used to continue widening and deepening of the Houston Ship Channel.

Funds requested will extend the enlarged main channel from Greens Bayou to Hunting Bayou and benefit the steel, petroleum, and chemical industries located near Hunting Bayou.

COMPLETED MODIFICATIONS

Work completed consists of a 34-foot channel extending from Bolivar Roads at Galveston, Tex., to terminals at the port of Houston and cost $11,213,000 including $1,365,000 of contributed funds. In addition $35,000 has been expended on a 10-foot channel in Buffalo Bayou above the main ship channel and $49,000 on construction of a pile dike in upper Galveston Bay.

REMAINING AUTHORIZED MODIFICATIONS

The 1945 River and Harbor Act authorized the construction of a 10-foot channel behind Brady Island. The estimate of cost for this modification is $26,000.

Mr. EVINS. The Houston Ship Channel in Texas is the first project under the construction items, and the corps is requesting $500,000 for it.

Will you please give us a brief statement, Colonel, on this project, as to the status of the land acquisition, by the local interests, which is required for its completion or advancement?

Colonel STARBIRD. Colonel Allen will give that.

Colonel ALLEN. The funds requested for 1956, Mr. Chairman, will permit resumption of the improvement of the Houston Ship Channel.

The project is authorized to a depth of 36 feet, with varying widths.

This request would continue the deepening of the channel to 36 feet from Greens Bayou to Hunting Bayou, an additional 2 miles.

In 1953, the Houston Ship Channel carried over 44 million tons of commerce which will give you an idea of the order of its use.

There are no difficulties anticipated with respect to land acquisition for this project. We still must get easements from local interests for the disposal areas and for the rights-of-way. Acquisition of those is substantially complete, and no difficulty is anticipated.

Mr. EVINS. The estimated Federal cost is $7,150,000, and appropriations to date have amounted to $3.5 million, which brings the project to approximately 50 percent of completion.

With the $500,000 requested for fiscal 1956, the project will be advanced to 56 percent of completion; is that correct?

Colonel ALLEN. That is correct, sir.

PORT ARANSAS-CORPUS CHRISTI PROJECT

Mr. EVINS. The next project for consideration is the Port Aransas-Corpus Christi project, and the Corps is requesting $600,000 for this project, which is basically for work in connection with Tule Lake.

We will insert pages 17 through 19 of the justifications into the record at this point.

(The pages are as follows:)

PORT ARANSAS—CORPUS CHRISTI WATERWAY, TEXAS (34-FOOT PROJECT) (CONTINUING)

Location.—Channel extending from Gulf of Mexico via Aransas Pass to terminals at Corpus Christi and Tule Lake, a distance of about 30.2 miles.
Authorization.—1945 and 1938 River and Harbor Acts.
Benefit-cost ratio.—1.7 to 1 for Tule Lake extension.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$2,253,000	
Estimated local cash contributions	216,000	
Estimated project cost	2,469,000	
Appropriations to June 30, 1954	1,082,000	
Appropriations for fiscal year 1955	400,000	
Appropriations to date	1,482,000	65
Appropriations requested for fiscal year 1956	600,000	92
Balance to complete after fiscal year 1956	171,000	

PHYSICAL DATA

Channels:
Entrance channel (outer bar): 37 feet deep, 700 feet wide, 0.7 mile long.
Jetty channel: 35 feet deep, 700 feet to 600 feet wide, 1.9 miles long.
Jetty to Corpus Christi: 34 feet deep, 250 feet wide, 20.9 miles long.
Industrial canal: 34 feet deep, 200 feet wide, 1.1 miles long.
Tule Lake extension: 34 feet deep, 200 feet wide, 4 miles long.
Turning basins:
Corpus Christi: 34 feet deep, 1,000 by 5,500 feet.
Avery Point: 34 feet deep, 1,000 by 1,200 feet.
Tule Lake: 34 feet deep, 900 by 1,000 feet.
Status (Jan. 1, 1955):
34-foot project, Gulf of Mexico to Avery Point—completed.
Tule Lake extension (34-feet)—15.6 percent complete with contributed funds.
Completion schedule:
Tule Lake extension:
34-foot channel, January 1956.
Turning basin, May 1957.

JUSTIFICATION

The Port Aransas-Corpus Christi Waterway is a deepwater project serving the needs of seagoing commerce from Port Aransas, Ingleside, and Corpus Christi, Tex. In 1953 a total of 23,391,694 tons of commerce moved over this waterway. The principal products produced in the area tributary to the waterway are cotton, corn, vegetables, livestock, natural gas, petroleum, and gypsum. Principal industries consist of the processing of agricultural products and the producing and refining of bauxite ore and of petroleum and petroleum products. Oil production was given considerable impetus by the late war industries and by the location of a large naval air training station at nearby Encinal Peninsula.

The Tule Lake extension will be an important supplement to a major waterway and is justified by the additional commerce of about 2 million tons which will originate on the extension. The Suntide Refining Co. (Sunray Oil Corp.) has constructed and has in operation a refinery under Certificate of Necessity No. TA–NC 8947 near Viola, Tex., at the Tule Lake turning basin site for production of very high octane (135) gasoline and jet fuel for use in the military defense program. Other industries now located along the proposed channel extension are the American Smelting & Refining Co., the Corn Products Refining Co., and the Phoenix Refining Co. These industries are engaged in production of zinc, sulfuric acid, sugar, starch, and refined petroleum products. Other industries having sites along the canal are American Cyanamide Co., Cargill, Inc., Heldenfels Bros., and Fordyce Gravel Co., the latter two being distributors of shell, gravel, and building materials.

Fiscal year 1956.—The amount of $600,000 is required in fiscal year 1956 to complete dredging of the 34-foot channel, except for the turning basin at the head of the Tule Lake extension.

COMPLETED MODIFICATIONS, PORT ARANSAS-CORPUS CHRISTI WATERWAY, TEX.

Work completed consists of a north jetty 9,240 feet long and a south jetty 7,385 feet long at Aransas Pass; a 20,991-foot-long stone dike on St. Joseph Island; inner basin at Harbor Island 30 feet deep, 650 feet wide, by 1,000 feet long; a 12-foot channel from the inner basin to the town of Port Aransas; and a 30-foot channel from Port Aransas (Gulf of Mexico) to Corpus Christi. The cost of this completed work is $4,895,000.

REMAINING AUTHORIZED MODIFICATIONS, PORT ARANSAS-CORPUS CHRISTI WATERWAY, TEX.

Modification in the 1948 River and Harbor Act provides for deepening the channel from Port Aransas to Tule Lake turning basin to 36 feet; widening the Corpus Christi Bay section to 400 feet; deepening turning basin to 36 feet; deepening the outer bar and jetty channels to 38 and 36 feet; and removal of a portion of the rubble mound breakwater at Corpus Christi maneuvering basin. Work has not been started on this modification which is estimated to cost $2,500,000.

Modification in the 1954 River and Harbor Act provides for a branch channel 32 feet deep and 150 feet wide extending northerly from the main channel near Port Ingleside, along north shore of Corpus Christi Bay to the Reynolds Metals Co. plant, and for turning basin 32 feet deep and 80 feet square near the plant at an estimated Federal cost of $829,100. No work has been started on this modification.

Modification in the 1954 River and Harbor Act provides for widening the entrance channel to the Corpus Christi turning basin from 100 feet to 400 feet and realines this entrance channel to ease the bend approach thereto at an estimated Federal cost of $180,000. No work has been done on this modification.

Modification in the 1954 River and Harbor Act provides for an anchorage basin 12 feet deep, from 300 to 500 feet wide, and 900 feet long in Turtle Cove adjacent to existing channel and turning basin at Port Aransas at an estimated cost of $40,000. No work has been done on this modification.

Mr. EVINS. In fiscal year 1955, the corps received $400,000 to work on this project, and yet I note that on March 31, 1955, about $390,000 of this amount was still unobligated.

Please tell the committee the reason for the delay on this project.

Colonel ALLEN. This project, Mr. Chairman, like several others in the budget, where work is to be done in 1 working season with appropriations from 2 fiscal years, will be initiated this spring, and continued through the remainder of this fiscal year, and completed in fiscal year 1956.

Doing it that way, we save on mobilization and demobilization costs by completing the work that can be done with 2 fiscal years funds under one contract. We enter into a continuing contract which carries over both fiscal years.

Mr. EVINS. Colonel, do you anticipate that you will be able to obligate all the funds for fiscal 1956?

Colonel EVINS. Yes, sir. The contract has been awarded this last week.

I would like to add one more thing with respect to the Port Aransas-Corpus Christi project.

There are indications now that the work which we had originally planned to accomplish with the $0.4 million appropriated for fiscal year 1955 and the $600,000 requested for 1956 is going to be increased. By reason of additional investigations made prior to dredging we find that the material is of a different character than had been originally

contemplated. It is not anticipated, however, that additional fund will be requested of the Congress to complete this 34-foot channe extension.

BRIDGE RELOCATION, CORPUS CHRISTI

Mr. EVINS. You are requesting $1.5 million for a bridge relocatio at Corpus Christi. Tell the committee the nature of this work.

At this point in the record we will insert pages 24 and 25 of th justifications.

(The pages are as follows:)

BRIDGE RELOCATION, CORPUS CHRISTI, TEX. (PORT ARANSAS-CORPUS CHRIST WATERWAY, TEX.) (NEW)

Location.—At the entrance to the main turning basin of the Port Aransa Corpus Christi Waterway, at Corpus Christi, Tex.

Authorization.—Truman-Hobbs Act as amended by Public Law 564 approve July 16, 1952.

Benefit-cost ratio.—Not applicable.

Summarized financial data

	Amount	Accumulat percent of estimated Federal co
Estimated Federal cost	$4,361,300	
Estimated local cost	1,815,000	
Estimated project cost	6,176,300	
Appropriations to June 30, 1954	0	
Appropriations for fiscal year 1955	0	
Appropriations to date	0	
Appropriations requested for fiscal year 1956	1,500,000	
Balance to complete after fiscal year 1956	2,861,300	

PHYSICAL DATA

Bridge: Steel truss lift bridge and approaches to accommodate single-track railwa and two-lane highway traffic having following clearances:
Vertical closed: 11.0 feet mean low tide.
Vertical open: 140.0 feet mean low tide.
Horizontal (between fenders): 300 feet.
Status (January 1, 1955): Not started.
Completion schedule: May 1957.

JUSTIFICATION

The obstructive bascule bridge is located across an angular entrance into th main turning basin of the Port Aransas-Corpus Christi Waterway, Tex., a deep water-navigation project serving the needs of seagoing commerce from Po Aransas, Ingleside, and Corpus Christi, Tex. In 1953 a total of over 23,391,69 tons of commerce moved over this waterway, of which approximately 12,300,00 tons moved through the bascule bridge at Corpus Christi, Tex.

The principal products produced in the area tributary to the waterway a cotton, corn, vegetables, livestock, natural gas, petroleum, and gypsum. Princip industries consist of the processing of agricultural products and the producti and refining of bauxite ore, and of petroleum and petroleum products. O production was given considerable impetus by the late war industries and by th location of a large naval air training station at nearby Encinal Peninsula. Th Sunray Oil Corp. has recently placed in operation near Viola, Tex., westerly the Corpus Christi turning basin, a refinery for the production of 135-octa gasoline and jet fuel.

The existing bascule bridge is a definite bottleneck to commerce entering an leaving the port of Corpus Christi. The limited horizontal clearance of 97.6 fe between fenders and the angular approach from the main channel causes traff

congestion, loss of shipping time, and creates a hazard to modern seagoing vessels. Following an analysis of evidence presented at a public hearing on December 10, 1952, the bridge was declared unreasonably obstructive.

Fiscal year 1956.—The requested appropriation of $1,500,000 will be applied to initiate construction of the new lift bridge at a site removed from the existing obstructive bridge.

Colonel ALLEN. The work at Corpus Christi, Mr. Chairman, for the relocation of the bridge, is done under the Truman-Hobbs Act of 1940. That act provides that the Secretary of the Army, having found a bridge unreasonably obstructive to navigation, shall issue an order to the bridge owner, and direct him to replace the bridge with a bridge of suitable dimensions.

The Truman-Hobbs Act also provides that the cost of such bridge replacements shall be borne in a manner set forth in the act, and apportioned between the Federal Government and the local interests.

Section 13 of the act under which the Corpus Christi Bridge is being modified, permits a bridge to be relocated in an area or a location different from that occupied by the existing bridge.

This bridge at Corpus Christi is obstructive to navigation. It has a horizontal clearance of about 97 feet. The channel makes an angle as it approaches the bridge, and as it leaves the bridge. The bridge was constructed in 1926 by local interests at a cost of some $400,000.

The interests of navigation could be served by the construction of another bridge adjacent to the existing bridge. Local interests desire, however, that in order to alleviate and correct the highway traffic situation which develops when this bridge is opened, to relocate the bridge upstream, some considerable distance from its present location.

That procedure is permitted under the Truman-Hobbs Act.

The question next arises as to how the Federal share of the cost of relocating this bridge is determined. In this case, a theoretical bridge, which would serve the interests of navigation, was designed to be constructed adjacent to the existing bridge and its cost estimated. The cost of that bridge to local interests—this theoretical bridge—was determined. The difference between the total cost of the bridge and the cost apportioned to local interests under the principles of the act was then determined to be the Federal share. That Federal share, then, was determined to be the maximum amount that the Federal Government could contribute to the cost of a bridge, regardless of where located. All other costs necessitated by reason of its relocation to a different area are being borne by local interests.

The full extent of the Federal Government's share was determined through the design, for erection at the present site, of a theoretical bridge. Then, the actual bridge which is to be built some considerable distance from this bridge was designed, and all costs over and above the Federal share, as determined from the design of the theoretical bridge, are to be borne by the local interests.

Mr. EVINS. Has the railroad assured the corps that it will proceed in the absence of the full appropriation?

Colonel ALLEN. Yes, sir; we have an agreement with the bridge owners, and they are willing to proceed on that basis.

Mr. EVINS. In comparing this hypothetical bridge which you have shown in your planning report with similar projects, the contingency factor of the Staten Island Bridge is 9.5, and the Norfolk-Portsmouth Bridge is 4.5, but the Corpus Christi Bridge is 12.2.

There is a substantial increase here in your contingency factor. Why is that necessary?

Colonel ALLEN. I should like to point out, sir; that these 3 bridges are in 3 different stages, with respect to completion of final detailed plans and specifications. When the original agreement is arrived at, it is done on the basis of general plans and specifications, and the amount of 12 percent is not considered excessive for a bridge in the stage of design of this Corpus Christi Bridge. In the case of the Norfolk-Portsmouth Belt Line Bridge the final plans and specifications have been submitted by the bridge owners and tentatively approved.

Mr. EVINS. Does the corps anticipate changing the plans on the Corpus Christi Bridge which as you state is a hypothetical bridge?

Colonel ALLEN. The Corpus Christi Bridge, sir; is not a hypothetical bridge. There are two bridges involved.

Mr. EVINS. The one which contains a contingency factor which would bring about some participation by the people is a hypothetical bridge, as shown in your planning report.

Colonel ALLEN. Yes, sir; that is correct. The cost of that hypothetical bridge, as bids are taken on the actual bridge, will be adjusted so that the bid prices will be reflected in the cost of the theoretical bridge.

We have an agreement with the owners that when bids are taken for the actual bridge, and we obtain bid prices per yard of concrete and per pound of steel, those prices will then be used in reevaluating the Federal and the local-interest shares of the cost in the theoretical bridge which is used in determining the apportionment of costs.

Mr. EVINS. What actual damages or losses have occurred as a result of the present bridge?

Colonel ALLEN. The only information I have, sir, is on the damage to the bridge. The planning report carries a figure of some $42,000 in damages, sustained by the bridge from a total of 62 accidents during the period 1947 to 1952.

I have no record of the extent of damage to vessels.

Mr. EVINS. The damage was caused by vessels striking the bridge in passing?

Colonel ALLEN. Yes, sir; that is correct. I have a picture here of a vessel transiting the bridge, which might give some indication of the difficulties involved.

That opening is 97 feet. The channel makes an angle just prior to reaching the bridge, and, as you can see, the ship has to realine immediately after passing the bridge.

Mr. EVINS. In relation to this picture, where is it planned to relocate the bridge?

Colonel ALLEN. I have it located, sir, with a few penciled dots upstream from the present bridge.

Mr. EVINS. Undoubtedly you must receive substantial objection to that relocation from the people in the adjacent area of the bridge.

Colonel ALLEN. No, sir.

Mr. EVINS. You are going to make them happy and satisfied by locating it at this other place, a mile away?

Colonel ALLEN. It is about 4 miles away.

Mr. EVINS. Four miles away?

Colonel ALLEN. Yes, sir.

ALBUQUERQUE UNIT, RIO GRANDE FLOODWAY

Mr. EVINS. The Corps of Engineers is requesting $1,600,000 for the Albuquerque unit on the Rio Grande floodway. Insert in the record pages 30 through 32.

(Pp. 30 through 32 are as follows:)

RIO GRANDE FLOODWAY (ALBUQUERQUE UNIT), NEW MEXICO

Location.—The project is located in New Mexico along the Rio Grande in the vicinity of Albuquerque. The project includes both the urban and suburban areas of Albuquerque beginning at a point near the Sandia Indian Pueblo north of the city, and extending downstream to the mouth of Tijeras Canyon Arroyo, a total distance of about 18 river-miles.

Authorization.—1948 and 1950 Flood Control Acts.

Benefit-cost ratio.—1.3 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$5,000,000	
Estimated local cash contributions	0	
Estimated project cost	5,000,000	
Appropriations to June 30, 1954	694,000	
Appropriations for fiscal year 1955	650,000	
Appropriations to date	1,344,000	27
Appropriations requested for fiscal year 1956	1,600,000	59
Balance to complete after fiscal year 1956	2,056,000	

PHYSICAL DATA

Levee:

Average height: 9 feet.

Length: Approximately 30 miles.

Type: Existing levees are not uniform as to grade, section, or standard of construction. New grades will be established and levees reconstructed with selected materials to standard sections. Seepage-control measures will be provided.

Bank stabilization: Flexible bank protection will be provided in units along the river channel to protect the levees.

Railroad grade raise: The main line of the A., T. & S. F. Railway crosses the tieback levee near the north terminus of the levee. The track is to be raised at this point in lieu of providing a stoplog structure.

Status, Jan. 1, 1955

	Percent	Completion date
Levees	21	June 1957.
Bank stabilization	13	Do.
Entire project	11	Do.

JUSTIFICATION

The project will protect both urban and suburban areas of the city of Albuquerque, N. Mex., against recurring floods on the Rio Grande. The city has experienced very rapid growth in population and greatly expanded development within the flood plain during recent years (having increased in population from about 35,000 in 1940 to over 140,000 in 1954). The central business district, main line and division shops of the A. T. & S. F. Railway, Federal and State highways, commercial, industrial, residential, and suburban property, and a large part of the utilities serving the city, such as lights, water, gas, and sewage disposal, are lo-

cated in the lowlands and are subject to flood damage because of an inadequate existing levee system. Each year the flood hazard increases, and the expenditures by both local interests and the Federal Government for flood fighting and emergency flood-control work along the floodway, including the Albuquerque unit, have correspondingly increased. Federal cost by the Corps of Engineers for flood fighting and emergency flood-control work along the Rio Grande amounted to approximately $1,120,000 during fiscal years 1948 to 1954, inclusive. Additionally, it is estimated that local interests, the Indian Service, and the Middle Rio Grande Conservancy District expended $700,000 during the same period for flood fighting operations and emergency work. A considerable part of the total expenditures were in the Albuquerque area. Construction of the Albuquerque unit, in addition to providing substantial protection for that community, would also benefit military and Atomic Energy Commission installations in the area, inasmuch as those bases are partially dependent upon the municipality for utilities, supplies, transportation, and housing facilities. Annual flood control benefits for the project are estimated at $304,000. The local interests have furnished all lands, easements, and rights-of-way for construction already initiated and relocated all public utilities as required and have agreed to continue their share of the required cooperation as the work progresses.

Fiscal year 1956.—The requested amount of $1,600,000 will be applied to:

Construction of phase III of levees and bank stabilization work (lots 1 and 2). (Work will extend downstream from work now under construction on east side of river to a point about 1 mile above Tijeras Canyon Arroyo)	$1,478,000
Supervision and administration	119,000
Engineering and design	3,000
Total	1,600,000

The funds recommended for fiscal year 1956 would permit completion of approximately 9.6 miles of levee and bank stabilization work. Total levee work completed would be approximately 17 miles in length and would extend downstream along the east bank of the river to a point about 1 mile above the mouth of Tijeras Canyon Arroyo. The completion of the levee along the east bank of the river would provide protection for the larger portion of the commercial, industrial, and residential property, subject to flood damage, a part of the utilities, and the A. T. & S. F. Railway facilities, inasmuch as the main business district of the city and the A. T. & S. F. Railway tracks lie on the east side of the river.

Mr. EVINS. Please give us a general statement of the need and the necessity and the importance of this project.

Colonel STARBIRD. This project is one to protect old Albuquerque. Located in this protected area is a great deal of the business section, also the railroad facilities and the crossing of the two major highways. Local people constructed levees in the past at an estimated cost then to them of a million dollars. These are inadequate in cross section and also have serious underseepage difficulties. The overall project here is one for rehabilitating those levees basically to the same capacity that they had before, but giving them a possibility of standing up under the large floods that might occur. Incidentally, this project depends for securing an adequate degree of safety, upon the construction of necessary upstream reservoirs. About one-half of the unit on the east bank of the river has been initiated or will be initiated with funds to date. With the funds requested for fiscal year 1956 we will initiate the next section, which you can see from the map, will tie in very close to the high ground at the southern end. It will give us for the first time a degree of protection with full improvement of the levees concerned.

The amount requested you have already given, sir. The work concerned would be initiated by contract in September of 1955.

DALLAS FLOODWAY

Mr. EVINS. The corps is requesting $3,690,000 for the Dallas floodway.

Please insert pages 36 and 37.

(The pages referred to are as follows:)

DALLAS FLOODWAY, TEX.

Location.—Located on the Elm Fork and West Fork of the Trinity River at Dallas in Dallas County, Tex.

Authorization.—1945 and 1950 River and Harbor Acts.

Benefit/cost ratio.—2.84 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$10,300,000	
Estimated local cash contributions	300,000	
Estimated project cost	10,600,000	
Appropriations to June 30, 1954	1,761,000	
Appropriations for fiscal year 1955	1,300,000	
Appropriations to date	3,061,000	29
Appropriations requested for fiscal year 1956	2,690,000	56
Balance to complete after fiscal year 1956	4,549,000	

PHYSICAL DATA

Levees:

Average height: 27 feet.

Length: 22.7 miles.

Channels: Improvement 3 miles along West Fork.

Pumping plants:

3 pumping plants with attendant sumps.

3 pressure conduits; length, 12,167 feet.

Status, Jan. 1, 1955

	Percent	Completion schedule
Channels	0	June 1958.
Levees	16	Do.
Pumping plants:		
Pumping plants	44	December 1956.
Pressure conduits	21	June 1958.
Entire project	23	Do.

JUSTIFICATION

The project, in conjunction with the Grapevine and Garza Reservoirs, will provide protection to the leveed areas of residential and industrial developments in the city of Dallas from discharges of a magnitude approaching the design storm. The area within the Dallas levee system totals approximately 10,500 acres including 7,000 residential units and approximately 600 business and industrial establishments and a network of rail lines and highways. The Grapevine project was completed and impoundment initiated during fiscal year 1953; the closure section of the Garza project was started during June 1954 and deliberate impoundment was initiated during November 1954. Required direct local interest contribution of $300,000 has been paid in full. Acquisition of rights-of-way and other local interest actions are keeping pace with construction schedules.

Fiscal year 1956.—The requested amount of $2,690,000 will be applied to:

Completion of sump D excavation	$24,100
Strengthening of east and west levees	563,400
Complete Turtle Creek, pt. 3	380,200
Complete Turtle Creek, pt. 4	503,000
Initiate Turtle Creek, pt. 5	245,000
Extension of sewers and conduits	15,000
Complete Lake Cliff pressure sewer	416,100
Continue construction of Hampton Road pumping plant	330,000
Engineering and design	35,000
Supervision and administration	178,200
Total	2,690,000

Mr. EVINS. I understand this is an old project. Is that correct, Colonel?

Colonel STARBIRD. This also is an old project in the sense that it rebuilds an extensive set of works that were installed by the local people, works that cost them originally around $20 million. The project, sir, was authorized by the Flood Control Act of 1945, and modified by the Flood Control Act of 1950.

OPERATION AND MAINTENANCE, CORPS OF ENGINEERS

Mr. EVINS. Under "Operation and maintenance," the corps is requesting $4,299,700.

Mr. Reporter, please insert in the record pages 43 through 46.

(The pages referred to are as follows:)

RIO GRANDE-GULF BASIN

JUSTIFICATION OF ESTIMATE

1. Navigation

(*a*) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels and harbors of coastal harbors and waterways by means of dredging, operation of navigation structures, snagging and repairing harbor jetties and breakwaters; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $3,465,000 for fiscal year 1956 is required for essential maintenance work on 14 channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis and determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly structural repairs and the maintenance of moderate and shallow-draft navigation channels. This condition continues to exist.

Tentative allocation, fiscal year 1956

Louisiana: Calcasieu River and Pass	$120,000
Texas:	
Anahuac Channel	30,000
Brazos Island Harbor	80,000
Cedar Bayou	60,000
Channel to Port Bolivar	10,000
Chocolate Bayou	30,000
Freeport Harbor	130,000
Galveston Harbor and channels	280,000
Gulf Intracoastal Waterway (Galveston)	740,000
Houston ship channel	470,000
Port Aransas-Corpus Christi Waterway	1,085,000
Sabine-Neches Waterway	270,000
Texas City Channel	140,000
Trinity River, channel to Liberty	15,000
Condition surveys	5,000
Total channels and harbors	3,465,000

(b) *Locks, dams, reservoirs, and canals.*—The budget estimate of $95,000 for fiscal year 1956 is required for operation, maintenance, and nondeferrable rehabilitation work. This amount is approximately $43,000 more than the amount available in fiscal year 1955. This increase is due to nondeferrable work necessary to stabilize abutment slopes.

Texas: Dam B Reservoir	$95,000
Total navigation	3,560,000

2. Flood control

(a) *Reservoirs.*—The budget estimate of $465,000 provides for the operation and ordinary maintenance of nine flood-control reservoirs in the Rio Grande-Gulf Basin during fiscal year 1956, and nondeferrable rehabilitation work. The benefits that accrue from the impoundment of damaging flood waters by this extensive reservoir system are substantial. The amount requested in fiscal year 1956 is approximately $3,000 less than the amount available in fiscal year 1955, and is the minimum necessary for adequate and efficient operation and maintenance of the project.

Tentative allocation, fiscal year 1956

New Mexico: Jemez Canyon Reservoir	$25,000
Texas:	
Belton Reservoir	57,000
Benbrook Reservoir	46,000
Buffalo Bayou	70,000
Garza-Little Elm Reservoir	74,000
Grapevine Reservoir	51,000
Hords Creek Reservoir	30,000
Lavon Reservoir	59,000
San Angelo Reservoir	50,000
Scheduling of reservoir operations	3,500
Total flood-control reservoirs	465,500

(b) *Other (including channel improvement projects, miscellaneous maintenance items and inspections).*—The budget estimate of $83,200 provides for the minimum requirement of regular maintenance and operation of the Mermentau River project, condition surveys, and inspection of completed projects during fiscal year 1956. The estimate includes $2,000 for condition surveys in order to establish the extent of rehabilitation work necessary to place this subject in proper condition for transfer to local interests when legislation becomes available authorizing the termination of Federal responsibility for its maintenance.

Tentative allocation, fiscal year 1956

Louisiana: Mermentau River	$80,000
Inspection of completed works	3,200
Total flood control, other	83,200
Total flood control	548,700

3. Multiple purpose projects including power

The budget estimate of $191,000 for operation and maintenance of one multiple purpose Reservoir project in the Rio Grande-Gulf Basin is the minimum amount necessary for operational requirements during fiscal year 1956. This is approximately $3,000 less than the amount available in fiscal year 1955.

Texas: Whitney Reservoir	$191,000
Grand total, Rio Grande-Gulf Basin	4,299,700

Mr. EVINS. Please give us a brief statement of your program for fiscal year 1956.

Colonel POWERS. The funds requested for operation and maintenance in the Rio Grande Gulf Basin of the projects which are completed and in operation, are the minimum funds necessary to keep those projects in operation and in suitable maintenance status bearing

in mind the relative needs of the other completed projects throughout the country.

In connection with the request for maintenance on channels and harbors, we reviewed during the past year the 29 completed and authorized projects in this basin and found that four projects no longer justified maintenance and that 9 projects had no need for maintenance work in the next 3 years for dredging or the next 6 years for structural repairs. A total of 14 projects will require work over that period and are included in the present budget.

TENTATIVE ALLOCATION OF FUNDS FOR MAINTENANCE

Mr. EVINS. Colonel Powers, in examining our 1955 program, I note that there have been appreciable changes in the tentative allocations in this area furnished the committee and the allocations that were actually made. It would appear that this is the result of perhaps some inadequacies in the original programing by the Corps of Engineers. How realistic do you consider your 1956 allocations to be?

Colonel POWERS. Sir, the problem of allocating funds in advance for maintenance requirements which will occur on navigable streams and in our harbors is a complex problem. Our procedure prior to the preparation of the budget for fiscal year 1955 was to make our estimate of anticipated requirements 18 months to 2 years in advance of the time that the money would actually become available. Accordingly, when the time came to spend the money for any given fiscal year, the justifications for work to be accomplished were as old as 18 months, 2 years, 2 years and 6 months. Changes in weather, and changes in shoaling rates which had occurred during that period naturally were not accounted for and we found in the actual expenditure of funds we deviated greatly from the tentative allocations which we had indicated to the Congress some time before. Accordingly, for the fiscal year 1955 budget we initiated a new system.

Mr. EVINS. You mean 1956?

Colonel POWERS. For the fiscal year 1955, last year's budget, we initiated a new system whereby all of our requirements were brought up to date a few months before the budget hearings and a similar review was made during the budget hearings. So that in May of 1954 we presented to the Congress a revised schedule of tentative allocations which was based on information current as of April 1954, thus insuring that during the fiscal year 1955 we would be operating much more closely to the tentative allocations furnished the Congress than we were in the past. That has worked out quite well during the fiscal year 1955. Deviations from our estimated requirements have been far less than they were in previous years, and for 1956 we are incorporating the same procedure. The tentative allocations which are shown in the present budget submission were reviewed and revised in January 1955. They are currently undergoing revision and within the next 2 weeks the Congress will be furnished a more up to date picture.

One of the basic reasons for such adjustment is the fact that in order to have funds available to take care of actual conditions during any current year, we must forecast whether the rate of shoaling will be the same as it has been in the past, whether it will be greater or less. We must anticipate what may happen within the channels and

what kind of weather we may have. Deviations from the norm of weather, or from the norm of shoaling rates will alter the allocations. Similarly, in any cases where we are considering the rehabilitation of structures which are below the waterline, or which are covered by concrete caps——

Mr. EVINS. In round figures and quickly, tell the committee how much additional funds are required for operation and maintenance, 1956 over 1955.

Colonel POWERS. In round numbers, sir; we are asking for approximately $1 million less for operation and maintenance in channels and harbors than we had available in 1955, nationwide.

Mr. EVINS. How about in the Rio Grande and Gulf Basin?

Colonel POWERS. I will have to furnish that for the record, sir.

The amount requested for the basin is about $1,100,000 less than the amount available for 1955.

DAM B RESERVOIR, TEX.

Mr. EVINS. Please insert in the record or explain the increases on Dam B Reservoir in Texas from $52,000 to $95,000.

Colonel POWERS. Dam B Reservoir in Texas, we have a most difficult channel stabilization problem, which is being completed under a new work contract to a stage where $70,000 of new work funds will have been expended but there will be additional requirements of $45,000 to sufficiently flatten out the bank slopes and place concrete and rock revetments.

MERMANTAU RIVER PROJECT

Mr. EVINS. $83,200 is requested for the Mermantau River project compared with $54,000 for last year. You state on page 54, and I quote:

The budget estimate of $83,200 provides for the minimum requirement of regular maintenance and operation of the Mermantau River project. Conditions surveyed and inspection of completed project during the fiscal year '56.

If this is a minimum program, what was the 1955 program by comparison?

Colonel POWERS. Estimated obligations for the fiscal year '55 were $51,000. The obligations, actual for fiscal year '54 were $81,701. Certain works of maintenance and repair in 1955 were deferred and can no longer be deferred.

Mr. EVINS. What is the status of legislation transferring this project to local interests?

Colonel POWERS. Legislation has been submitted through the Bureau of the Budget to the Public Works Committees of both Houses of Congress which, if passed, will enable a total of approximately 26 local protection projects to be turned over to local interests for maintenance and operation.

Mr. EVINS. What is the position of the Corps of Engineers on this legislation?

Colonel POWERS. The Corps of Engineers has prepared the legislation and submitted it to the committees through the budget.

Mr. EVINS. Do you favor it or disfavor it? Do you recommend its adoption or its disapproval?

Colonel POWERS. The Corps of Engineers would——

Mr. EVINS. Are you precluded from making any comment by the Bureau of the Budget?

Colonel POWERS. Not necessarily, sir. The Corps of Engineers would be interested in seeing the requirements and responsibilities for operation and maintenance of local protection projects to be on a similar basis for all projects throughout our program. However, as you know, there are legal and practical difficulties in the way of that at the present time.

(Discussion off the record.)

Mr. EVINS. In further answer to my question, as to the position of the Corps of Engineers on this legislation; I will ask the colonel to state whether or not the corps favors the turning over of maintenance and operation of these projects, to the local interests?

Colonel POWERS. The Corps of Engineers favors placing these local protection projects in the same status as all others whereby the operation and maintenance will be performed by the local interests.

Mr. EVINS. Have all these projects been examined and their continued maintenance found to be economically feasible?

Colonel POWERS. An economic analysis is required by the corps only on navigation projects. All of those in this portion of the budget request have been analyzed within the last 2 years and are economically justified.

Mr. EVINS. The Corps of Engineers uniformly does a very good job.

Mr. MURRAY. I would like to ask a question for information on this problem of local interests taking over. Suppose Congress passes the enabling legislation for local interests to take this over but the State has no legislation which authorizes any local people to take it over. What happens then?

Colonel POWERS. Well, sir, when enabling legislation is passed, then it will be the responsibility of the Corps of Engineers to contact the local interests and make the necessary negotiations for the time of turning the project over and the conditions under which it will be turned over. In the event the local interests are unable to assume responsibility for operation and maintenance due to either unwillingness or legal osbstacles, then we will report that fact to the Congress and I should imagine the Appropriation Committee would decide whether we should have the funds to continue operations and maintenance.

(Discussion off the record.)

Mr. EVINS. We thank you gentlemen very much for your fine statements and the customary and usual good presentation.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Mr. EVINS. The committee will consider now "General investigations, Interior Department, Bureau of Reclamation."

Mr. Reporter, please insert in the record at this point pages 3, 8, and 9 of the justifications.

(The pages referred to are as follows:)

Summary by activities, Rio Grande and Gulf Basin, estimated costs of investigations in the current program

Activity	Estimated total	Total June 30, 1954	Program, fiscal year 1955	Program, fiscal year 1956	Balance to complete
Engineering and economic investigations	$6,054,197	$1,147,197	$542,000	$920,000	$3,445,000
Advance planning	451,288	443,288	8,000		
Total cost	6,505,485	1,590,485	550,000	920,000	3,445,000
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc			−8,139		
Total obligation program			541,861	920,000	
Less unobligated carryover and funds advanced			−46,236	−50,000	
Allocation or estimate			495,625	870,000	

Schedule of general investigations program, fiscal years 1955 and 1956, Rio Grande and Gulf Basin

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations basin surveys:							
Region 5: Pecos River Basin	New Mexico-Texas.	$528,692	$221,692	$5,000	$122,000	$180,000	Investigations of Pecos River Basin, N. Mex., retarded due to limited funds, are to be resumed in fiscal year 1956 to evolve plans for optimum salvage and use of very limited water resources of the basin in the interest of alleviating presently distressed areas within the basin.
Subtotal, basin surveys		528,692	221,692	5,000	122,000	180,000	
Project investigations:							
Region 5:							
Gulf Basin project	Texas	4,000,000		157,000	578,000	3,265,000	This investigation is needed to permit determination of the water and land-resource potentialities of the Gulf basin, and the formulation of a plan to develop them in the best interests of the Nation, State, and local interests. It is particularly needed to permit proper channeling of vast sums presently authorized or proposed for Federal water use and control projects in Texas. Feasibility report in San Angelo unit to be completed by end of fiscal year 1955.
Lower Rio Grande rehabilitation project	do	185,000		85,000	100,000		This investigation would be directed toward development of plans for rehabilitation of 3 existing irrigation distribution systems and for providing the adequate drainage in the interest of permitting more efficient use of the limited water supplies of the lower Rio Grande Valley.
McMillan Delta project	New Mexico.	120,000	97,000	23,000			Completion of studies of feasible plan to salvage water now being lost by nonbeneficial consumptive use by salt cedars and other plants in the McMillan Delta to provide urgently needed water for the Pecos River Valley.
San Juan-Chama project	Colorado-New Mexico.	1,073,210	773,210	220,000	80,000		Investigations required to complete detailed study of plan for transferring divertible waters of the San Juan River in upper Colorado River Basin to the Rio Grande Basin to provide water for supplemental irrigation and other uses in an area where pressure of population on land and water resources probably is not exceeded in the Nation.
San Luis Valley project	Colorado	147,295	55,295	52,000	40,000		Investigation includes revision of Rio Grande Division planning report leading to reauthorization of Wagon Wheel Gap unit; wrap-up investi-

							Nation.
San Luis Valley project	Colorado	147, 295	55, 295	52, 000	40, 000		Investigation includes revision of Rio Grande Division planning report leading to reauthorization of Wagon Wheel Gap unit; wrap-up investigations of power potentials on the Rio Grande watershed; and revision of the Closed Basin drain program report.
Subtotal, project investigations		5, 525, 505	925, 505	537, 000	798, 000	3, 265, 000	
Total, engineering and economic investigations		6, 054, 197	1, 147, 197	542, 000	920, 000	3, 445, 000	
Advance planning:							
Region 5: Canadian River project	Texas	451, 288	443, 288	8, 000			Advance planning now in progress scheduled to be completed in fiscal year 1955. This project would supply stored surface water to cities in the high plains region of northwest Texas to supplement municipal and industrial water supplies.
Total, advance planning		[1] 451, 288	[1] 443, 288	8, 000			
Total cost		6, 505, 485	1, 590, 485	550, 000	920, 000	3, 445, 000	
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.				−8, 139			
Total obligations				541, 861	920, 000		
Method of financing:							
Allocation of appropriation				495, 625			
Prior year balance available				3, 736			
Contributions				42, 500	50, 000		
Allocation of appropriation requirements					870, 000		

Mr. EVINS. The Bureau is requesting $920,000 for "General investigations." We would like for Mr. Jennings and Mr. Nielsen to give us a general statement of the picture as it appears today under "General investigations" and the need for these funds.

Mr. JENNINGS. The budget for fiscal year 1956 includes $5,175,000 for general investigations by the Bureau of Reclamation in the 17 Western States, Alaska, Hawaii. It is estimated that about $920,000 of this amount would be used in the Rio Grande Basin and the Gulf Basin.

PECOS RIVER BASIN

In fiscal year 1956 a full-scale basin survey will be resumed on the Pecos River Basin. This work has been deferred for several years because of lack of ample funds.

The Pecos River Basin, like most other areas in New Mexico, has been plagued by a long series of dry years, increasing demands on a very limited water supply, and repeated shortages for irrigation purposes. The water problems of this basin are as complex as any to be found in the State, making it urgent that any proposed water development project be evaluated in the light of optimum basin development.

GULF BASINS PROJECT

Investigations of the Gulf Basin project are in progress to study plans for water supplies throughout the Texas gulf coastal area. In fiscal year 1956 an increase in the funds for this project is desired to permit a more practical and economical rate of planning on the project.

Expanding State and national economies have increasing need for Texas products requiring great quantities of water for processing. The State has no preconceived, statewide, water-use plan into which Federal funds have been, or can be, channeled with an awareness of local and national needs that can be satisfied by water projects of large magnitude which has deterred development of the water- and land-resource potentialities of the Gulf Basin in the most economical and desirable manner. The scheduled investigations are necessary to facilitate formulation of such a plan and development of those potentialities in the interest of the Nation, State and concerned local areas.

LOWER RIO GRANDE VALLEY

Cooperative investigations in the Lower Rio Grande Valley are scheduled for completion in fiscal year 1956. All of the lower Rio Grande Valley irrigation districts now face the fact that hereinafter they can utilize but 58 percent of the Rio Grande water stored in Falcon Dam—the remaining portion going by treaty to Mexico, which country is now able to utilize its share of the Rio Grande yield. If the valley is to continue to utilize the acreage irrigated in the past, approximately 600,000 acres, this can only be accomplished if more effective and efficient utilization is made of the waters now available to the United States side. Preliminary surveys indicate that better distribution systems in the various valley irrigation districts may possibly save up to 30 percent of the water presently diverted by the districts from the river. The direct purpose of the investigations of the lower Rio Grande rehabilitation is to prepare plans for renovating the

irrigation systems. Drainage programs are required to enable more effective utilization of the available land and water inasmuch as severe crop losses are suffered from excessively high-water tables and pondage of surplus surface water.

SAN LUIS VALLEY PROJECT

Investigations in progress on the San Luis Valley project in Colorado and the San Juan-Chama project in New Mexico are scheduled for completion in fiscal year 1956. The need for supplemental water for the San Luis Valley project area for irrigation of lands now receiving a partial supply becomes more acute each day. A severe drought during the past 2 years in the Rio Grande Basin in Colorado, New Mexico and Texas, has brought to the attention of all landowners the extreme necessity of a strict and early conservation of all available water in the Rio Grande drainage area. Works proposed for the San Luis Valley project will permit orderly and economical development of the existing resources and will supplement the national income in addition to increasing benefits locally.

SAN JUAN–CHAMA PROJECT

The San Juan-Chama project would import additional water from the Colorado River Basin. This imported water would be utilized in an area where the pressure of population on the land and water resources probably is as great as anywhere in the Nation.

PECOS RIVER BASIN

Mr. EVINS. Thank you, Mr. Jennings, for your fine statement.

What is the relationship between the Bureau of Reclamation study in the Pecos River Basin, and those of the Corps of Engineers and the Department of Agriculture?

Mr. JENNINGS. Our principal studies in the Pecos River which we intend to initiate, if funds are made available, would be to study water rights, nonbeneficial consumptive use by phreatophytes (water-loving plants); attempt to locate additional storage capacities, possibility of rehabilitation of the Red Bluff project, and a method of rectifying a salt infusion at Malaga Bend.

The Corps of Engineers is principally concerned with flood control where we are concerned with water use.

The program of the Department of Agriculture consists principally of watershed treatment. All are coordinated at the field level and we have excellent relations with both the Army and Agriculture.

Mr. EVINS. Why is the Bureau resuming these studies at this time?

Mr. JENNINGS. The studies in the Pecos River have never been conducted on a basinwide scope, and that would be the purpose of this study.

Mr. EVINS. You have had considerable difficulty along this line in the past, I understand, with reference to overlapping in the Brazos River area where some controversies developed. Over $5,000 was allocated for fiscal year 1955 compared to $122,000 requested for 1956 for the Pecos study.

Mr. JENNINGS. As far as I know, we have the best possible working relations with both the Army and the Department of Agriculture.

Mr. EVINS. How much did you request for fiscal 1955 for the Pecos project?

Mr. JENNINGS. I do not have that figure. Could I furnish that for the record?

Mr. EVINS. Supply that for the record and see if they gave you what you requested.

Mr. NIELSEN. You are asking for the budget request for 1955?

Mr. EVINS. What you asked of the budget and how much you asked of the committee. Will you supply those two figures for 1955 for me on this Pecos River Basin project?

(The information referred to is as follows:)

PECOS RIVER BASIN

The Bureau requested $105,000 for this investigation and the Bureau of the Budget allowance permitted on allocation of only $6,000 in fiscal year 1955.

GULF BASIN PROJECT

Mr. EVINS. The Bureau of Reclamation is requesting $578,000 for a $4 million study of the Gulf Basin project. In justification, you state:

It is particularly needed to permit proper channeling of vast sums of presently authorized or proposed Federal water use and control projects in Texas.

What sums have been authorized and proposed and by whom?

Mr. JENNINGS. As I recall, sir, the principal sums have been authorized to the Army engineers, principally for flood control work. I think those sums are in the nature of $380 million.

Mr. EVINS. These activities have already been authorized. Why do you need further investigations?

Mr. JENNINGS. Our studies have revealed that the principal lack of information is in the nature of water uses. A preliminary study initiated in 1949 which was printed as Senate Document 57, 83d Congress, 1st session, indicates upwards of 13 million acre-feet of water should be provided for water uses purposes in this area. Our study now would go into cataloging the needs and the resources in this area.

Mr. EVINS. Colonel Starbird, perhaps you could answer a question at this point.

Isn't practically $4 million for this project excessive?

Colonel STARBIRD. I can't confirm that. I imagine the three-hundred-some-odd million dollars that was mentioned is the total authorization in the basin. As has been brought out by the Bureau witnesses, sir, we generally investigate a basin from the point of view of flood control, navigation, and hydroelectric power. When that investigation is made and there is a need for irrigation in the same structures, we coordinate and recommend the necessary storage in our structures. I cannot comment at all on the $4 million figure, sir.

Mr. EVINS. The Gulf Basin project of Texas is estimated to cost $4 million. For fiscal year 1955, according to your justification $157,000 was approved.

For fiscal 1956, $578,000 is requested and it is stated it is needed to permit proper channeling of vast sums presently authorized or proposed for water use in control projects in Texas.

Is this the beginning work on another big reclamation and multipurpose project planned for the basin?

Mr. JENNINGS. Yes, sir. It is for more detailed studies that we feel are necessary and must be accomplished before such a project could be outlined, and the $4 million is required for this purpose.

CONSTRUCTION, BUREAU OF RECLAMATION

CARLSBAD PROJECT

Mr. EVINS. Under construction, the Bureau of Reclamation is requesting $1,171,000 to complete the Carlsbad project.

Mr. Reporter, please insert in the record page 198.

(The page referred to is as follows:)

CARLSBAD PROJECT, NEW MEXICO, ALAMOGORDO DAM SPILLWAY ENLARGEMENT

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$1,471,000
Total obligations to June 30, 1954		
Allotment, fiscal year 1955	$300,000	
Total obligations, fiscal year 1955		300,000
Allotment, fiscal year 1956	1,171,000	
Total obligations, fiscal year 1956		1,171,000
Balance to complete		

Work proposed, fiscal year 1956

Spillway enlargement ($1,180,500).—The program provides for completion of the Alamogordo Dam spillway enlargement under the single construction contract to be awarded in fiscal year 1955. The construction organization at the site of work will be only that required to complete all work in fiscal year 1956.

Mr. EVINS. Mr. Jennings, give us a statement as to the need for the funds in this project and the status of the project.

Mr. JENNINGS. The funds requested are for the enlargement and modification of the spillway outlet works at the existing Alamogordo Dam. This dam was constructed in 1938 and even during its construction we had storms that exceeded the capacity of the spillway which was designed upon the then known information.

Last year, an authorization and funds were secured for these necessary alterations and modifications of the spillway to bring this structure up to a safe condition. Recently, bids were opened on this construction project and we received exceptionally favorable bids and work is now under way. Expenditures are expected to be started this quarter.

Mr. EVINS. What was the actual low bid?

Mr. JENNINGS. The low bid for the work included in the specifications was just under $600,000.

Mr. EVINS. What was the Government's estimate?

Mr. JENNINGS. The estimate for the entire work to be performed for this job——

Mr. EVINS. For this bid.

Mr. JENNINGS. Approximately $850,000. About $250,000 under the estimate.

MIDDLE RIO GRANDE PROJECT

Mr. EVINS. Mr. Jennings, with reference to the Middle Rio Grande project, the Bureau is requesting $3,500,000. I will ask the reporter to insert BR–205, 206, and 207 in the record.

(The pages referred to are as follows:)

MIDDLE RIO GRANDE PROJECT, NEW MEXICO

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$28, 808, 874
Total obligations to June 30, 1954		4, 545, 816
Allotment, fiscal year 1955	$2, 000, 000	
Contribution, State of New Mexico	10, 000	
Total obligations, fiscal year 1955		2, 010, 000
Allotment, fiscal year 1956	$3, 500, 000	
Total obligations, fiscal year 1956		3, 500, 000
Balance to complete		18, 753, 058

Work proposed, fiscal year 1956

El Vado Dam ($246,549).—Construction will continue and progress payments will be made under a prime contract awarded in September 1954. Additional funds will be needed to award a contract to stabilize the left abutment of the dam. All work on this feature will be completed during the fiscal year.

Isleta diversion dam ($61,039).—Construction will continue and progress payments will be made under a prime contract awarded in September 1954. Two small contracts to rehabilitate the gate hoists and install a lighting system will be awarded. All work on this feature will be completed during the fiscal year.

Angostura diversion works ($57,200).—A construction contract to rehabilitate this feature will be awarded. All work will be completed during the fiscal year.

San Acacia diversion dam ($91,800).—A construction contract to rehabilitate this feature will be awarded. All work will be completed during the fiscal year.

Deep wells.—Program completed in fiscal year 1955.

Canals ($1,471,934).—The necessary rights-of-way will be acquired and construction contracts for four settling basins on the main canals awarded and completed during the year; $150,000 is programed to extend work initiated during fiscal year 1955 in cooperation with the Corps of Engineers for construction of conveyance structures for Atrisco Canal. Two additional construction contracts for Atrisco feeder canal and Atrisco siphon will be awarded, with construction continuing into the following fiscal year. Four dredges for the settling basins will be acquired and installed during the last half of the year.

Laterals ($207,181).—All investigations necessary to formulate a plan of rehabilitation of the distribution system will be completed and design data for two construction contracts will be submitted to the Denver office.

Drains ($706,597).—Construction will continue and progress payments will be made under a contract awarded in 1954. Six additional contracts for rehabilitation of open drains will be awarded and completed during the year. Field investigations will continue on the closed drains and design data submitted for three construction contracts to be awarded in fiscal year 1957.

Channelization-San Marcial area.—Program completed in fiscal year 1955.

Channel rectification, Middle Valley ($306,900).—The total amount represents costs of investigations during the year. These investigations will include a contract, estimated at $200,000 for prototype channelization work. This prototype is to be used to obtain information in developing a definite plan for channel rectification in the Middle Valley. Sedimentation studies and other channel investigations will continue during the year.

Channel access facilities ($51,300).—Heavy equipment crossings on riverside drains for access to channel and levee will be completed.

Improvements, San Marcial area.—Completed in prior years.

Channel maintenance equipment ($111,800).—Additional equipment required for proper maintenance of completed channel works will be purchased.

General property ($169,700).—Equipment necessary to adequately operate and maintain the rehabilitated irrigation system during construction will be purchased. A $70,000 contract will be awarded to construct additional facilities for the district division field offices.

Mr. EVINS. Last year, the total construction cost of this project was $22,560,000; $9,100,000 was allocated to nonreimbursable flood control and $20 million for irrigation. This year the cost is estimated to be $23,306,000 with $11,159,000 allocated to flood control and $18,447,000 to irrigation. How do you explain this change? Has this allocation been approved by the Corps of Engineers who has the primary flood control responsibility in the area?

Mr. JENNINGS. The allocation to flood control was set up in the flood control bill of 1950 and the total cost of the Bureau project was then established at $30,179,000. The total cost is remaining the same. Some flood-control work yet remains to be accomplished; it is to be left for future years' accomplishment.

Mr. EVINS. Mr. Jennings, according to our examination of the justification, Bureau of Reclamation, page 204, you indicate that the original estimated cost was $30,179,000. Now you say the present estimated cost is $23,306,000. That is a substantial reduction from your original estimated cost figure.

Mr. JENNINGS. The figure you last quoted is for construction purposes only. The total figure that I quoted is both for purchase of bonds and for construction work.

Mr. EVINS. Your first figure says, under "Construction costs."

Mr. JENNINGS. Yes, sir; which is $23,306,000——

Mr. EVINS. $30 million, plus. The figure is under "Construction costs."

Mr. JENNINGS. That includes the purchase of bonds, sir, which is about $7 million which was authorized as part of this project.

Mr. EVINS. Last year your total construction cost, excluding bonds, is shown here estimated to be $22,506,000.

Mr. JENNINGS. Yes, sir.

Mr. EVINS. You allocated $9,100,000 to flood control. And this year you allocate to flood control $11,160,000, approximately.

Mr. JENNINGS. Yes, sir.

Mr. EVINS. What is the reason for the change? How do you explain these changes?

Mr. JENNINGS. The flood-control work has been pushed into the future. The work that was authorized for the Bureau to do is performed between the levees constructed by the corps and is channel-rectification work. As to the details of that, I cannot state right now.

Mr. EVINS. Have these allocations been approved by the Corps of Engineers?

Mr. JENNINGS. No, sir.

APPROVAL OF PROJECT BY CORPS OF ENGINEERS

Mr. EVINS. I wish you would supply for the record a statement of approval of the program by the Corps of Engineers and the reasons for the increases and the changes.

Mr. JENNINGS. Yes, sir; I will. This is the Middle Rio Grande project, the overall situation.

(The information referred to follows:)

Bureau of Reclamation—Construction and Rehabilitation, Middle Rio Grande Project

APPROVAL BY THE CORPS OF ENGINEERS

The program of the Bureau of Reclamation has the approval of the Corps of Engineers, where coordination of the work of the two agencies is involved. The program of channel rectification is a cooperative one between the Bureau and the Corps of Engineers. Certain portions of the work are assigned to the Bureau and others to the corps. Scheduling of the construction operations by both agencies is the result of continuous cooperation, secured by close working arrangements at the project level and by coordination of the appropriation requests of the two agencies by the Bureau of the Budget. For example, a joint meeting of representatives of the corps' engineers and the Bureau of Reclamation was called by the Bureau of the Budget when construction estimates were first being considered to make certain that construction plans of the two agencies were properly coordinated. The channel rectification for which the Bureau of Reclamation is responsible runs from San Marcial south to Elephant Butte Reservoir. From San Marcial north to Albuquerque the primary responsibility is with the Corps of Engineers, although some of the work will be done by the Bureau. Since part of the rectification plan involves channelization by the Bureau between levees constructed by the corps, complete coordination and approval of the program by both agencies is essential and is being achieved.

The change in estimated cost of floodway channelization from previous estimates to that shown in the fiscal year 1956 justification only reflects the latest best estimate for the work. The total estimated cost for the project has not changed and does not exceed the authorized amount.

REPAYMENT CONTRACT

Mr. Evins. Last year, I understand you stated for the record that the repayment contracts had been executed for $18,184,000. This year you state that it is for a maximum of $18 million but you show actual repayment of only $16,740,000. What kind of repayment contracts do you actually have with the people in the area?

Mr. Jennings. We have a repayment contract covering all the construction work allocated to irrigation, sir. The amount that you are taking off, sir, I think is the amount that is allocated to Indian lands which changes the figure by $1,707,000.

We have a contract with the water users to repay a maximum of $18 million in 40 years which covers all the costs allocated to irrigation. In addition to that, we have $1,707,000 for work for Indian lands which is nonreimbursable by reason of the Levitt Act.

Mr. Evins. How much are the water users actually going to repay—$18 million or $16,740,000? There are two figures you have shown. Are they going to pay back the $18 million you said or $16,740,000?

Mr. Jennings. Their contract provides that they can pay up to the full amount of $18 million—we have a sliding scale which provides for purchasing of the bonds. It is a rather complicated arrangement. I can furnish a statement on it.

Mr. Evins. Will you supply a statement for the record so we will know just where we stand?

(The information referred to is as follows:)

Middle Rio Grande Project, New Mexico-Texas, Repayment Contract

The repayment contract dated September 24, 1951, between the United States and Middle Rio Grande Conservancy District provides for a maximum obligation of $18 million. This figure is divided into two parts $7,560,000 for the purchase of outstanding bonds of the district and an amount not to exceed $10,440,000 for actual construction work. Appropriations to purchase the bonds as planned have not been received and the district has had to continue its annual bond-redemption

ayments. The contract further provides that in the event the United States es not acquire and cancel said bonds of the district on or before January 1, 1952, the option of the district the maximum obligation may be reduced by the mount of interest and principal required to be paid by the district on its bonds ecruing after said date. Through fiscal year 1956 the district will have paid 1,260,000 in principal which when deducted from the total obligation will leave amount of $16,740,000. The obligations for actual construction work of 0,440,000 will remain the same unless the district exercises its option to reduce his amount by actual interest payment made on said bonds.

RIO GRANDE PROJECT, ELEPHANT BUTTE POWER AND STORAGE DIVISION

Mr. EVINS. I notice you are requesting $40,000 on this project for ork in connection with the pending claim by the Atchison, Topeka Santa Fe Railway Co. We will insert page BR–214 of the justificaon at this point.

(The matter referred to follows:)

io GRANDE PROJECT, ELEPHANT BUTTE POWER AND STORAGE DIVISION, NEW MEXICO-TEXAS

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

stimated total obligations		$16, 353, 830
otal obligations to June 30, 1954		16, 140, 558
llotment, fiscal year 1955	$147, 500	
rior year balance available	25, 772	
otal obligations, fiscal year 1955		173, 272
llotment, fiscal year 1956	40, 000	
otal obligations, fiscal year 1956		40, 000
alance to complete		

ork proposed, fiscal year 1956

Completed facilities.—All construction work completed and in service in fiscal ear 1955 or prior years.

Elephant Butte Dam and Reservoir ($40,000).—The only work to be underway ill be completion of the collection and accumulation of necessary engineering ata for use by the United States in defense of the claim for $4 million of the *A. T. & S. F. Ry. Co.*, v. *U. S.*, Court of Claims No. 90–54. The suit by the railay company being brought to recover alleged damages resulting from operation f Elephant Butte Reservoir.

What is the nature of this claim and what is the status of the litigaion?

Mr. JENNINGS. The Atchison, Topeka & Santa Fe Railway Co. has iled a claim against the United States in the Court of Claims. They llege that railroad properties immediately above the Elephant Butte Reservoir, in the San Marcial area, have been damaged in a total mount of $3,979,954.77. The claim is based upon the company's ontention that silt deposits in recent years at the head of the reservoir ave caused $979,954.77 in damages to their property, and such siltaion has now reached the point that continued operation of the system n its present location is infeasible, making it necessary to relocate ertain facilities at a cost of $3 million. The Government defense will entail the accumulation of extensive factual and theoretical data for howing whether the railroad company's contention is in fact correct, r whether the alleged damages were caused by other factors. This equires extensive field surveys and studies of the entire Rio Grande

above the Elephant Butte Reservoir, including its tributaries, by re viewing all matters which may have caused the siltation attribute by the railroad entirely to the Elephant Butte construction. Ou findings will be placed in form suitable for introduction as evidenc A complete defense in this case is of vital importance to the Unite States, for the decision will undoubtedly establish a precedent for ap plication under like circumstances to many of the great storage dam and reservoirs throughout the country.

Mr. EVINS. Is this the Court of Claims?

Mr. JENNINGS. Court of Claims; yes, sir.

Mr. EVINS. Is it proposed here for money to be appropriated her for at least partial payment?

Mr. NIELSEN. This is for preparation only.

Mr. JENNINGS. For preparation of evidence for the suit.

Mr. EVINS. $40,000 worth of evidence is a good bit.

REPAYMENT OF COSTS

Supply for the record the situation with respect to the repayme contract on the Rio Grande project.

Mr. JENNINGS. I will insert a statement on repayment of tot project cost.

RIO GRANDE PROJECT, NEW MEXICO–TEXAS

Table of allocation and repayment of costs

(Covers total project for irrigation and power)

Total estimated cost	$26, 950, 04
Reimbursable:	
Irrigation	10, 680, 44
Power [1]	13, 724, 08
Total reimbursable	24, 404, 52
Nonreimbursable:	
Mexican Treaty	1, 000, 00
Flood control	1, 510, 65
Contribution, Department of Justice	10, 96
No-cost transfer equipment (AEC)	22, 90
Total nonreimbursable	2, 544, 52
Repayment of reimbursable costs:	
By irrigation water users	10, 680, 44
By power revenues [1]	13, 724, 08

[1] The reimbursable amount of $13,724,086 from power revenues includes $4,080,075 previously allocated t irrigation for the Elephant Butte Dam. By contract dated Nov. 10, 1937, in accordance with terms of th appropriation act of 1938, the district was relieved from repayment of the cost of Elephant Butte Dam i return for relinquishment of their interest in power development.

NOTE.—This statement differs from page 213 due to costs of irrigation diversion and distribution work being included. The water users are repaying the $4,080,075 through a storage charge of 10 cents per acre-foo

Mr. EVINS. The amount to be paid from irrigation is $4,080,075 The amount to be repaid from power revenue is $9,644,411. Is thi the situation where power is carrying the full load?

Mr. JENNINGS. No, sir. Repayment of costs allocated to irrigation will be paid by water users at 10 cents per acre-foot for water released from storage facilities.

Mr. DOMINY. That repayment information there refers entirely to storage facilities. The balance of the project, the diversion dams and all of the canals and laterals and drains is repaid in full by the irrigators in a standard repayment contract. This repayment information on page 211 refers only to Elephant Butte Dam and Reservoir and the Cabello Dam and Reservoir which are the storage facilities.

Mr. EVINS. My statement is still correct based upon these figures that power is carrying the full load including that allocated to irrigation in this respect.

Mr. DOMINY. As far as the storage dam and reservoir is concerned, the power has been assigned to pay that out.

OPERATION AND MAINTENANCE, BUREAU OF RECLAMATION

SAN LUIS VALLEY PROJECT

I will ask the reporter to insert page 515 in the record.

(The page referred to is as follows:)

SAN LUIS VALLEY PROJECT, COLORADO

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$11,990
Allotment, fiscal year 1955	$11,820	
Total obligations, 1955		11,820
Allotment, fiscal year 1956	12,000	
Total obligations, 1956		12,000

Work proposed, 1956

Multipurpose facilities	Program, 1956	Increase or decrease from 1955
Storage system: For operation and maintenance of Platoro Dam and Reservoir	$12,000	+$180
Total obligations	12,000	+180

Mr. EVINS. Last year, the Bureau stated that final payment contracts and water contract agreements would be secured in fiscal year 1954. Now the Bureau states that they will be secured in 1955. Hasn't there been any progress on this since last year's statements? Just what is the situation?

Mr. JENNINGS. Which projects are you talking about now, sir?

Mr. EVINS. San Luis Valley project.

Mr. JENNINGS. On this project, we cannot store water in the reservoir and cannot get consent agreements until we can comply with State law and compact provisions; because of the drought we cannot do that and we have not secured the statements as yet.

Mr. EVINS. You still have not answered my question, Mr. Jennings. I pointed out that last year you stated you would secure them in fiscal year 1954. Now you state it will be 2 more years before you secure the contracts.

Mr. JENNINGS. We have not secured the consent agreements and we cannot secure them until we are able to store water in the reservoir.

Mr. NIELSEN. We cannot store water in Platoro Reservoir because of the drought and due to the compact limitations upon us, we cannot make the Platoro Reservoir effective at this time.

Mr. EVINS. Do you anticipate storing in 1955?

Mr. NIELSEN. We are always hoping it will rain, Mr. Chairman.

Mr. EVINS. You are asking for money from this committee and you are telling us each year you are going to get these contracts which you never have made. Is the difficulty because it doesn't rain?

Mr. JENNINGS. Yes, sir. The drought is such that the State of Colorado is seriously in debt under the compact and they cannot store water in this reservoir as long as they are in debt. Consequently, they cannot get the consent agreements to store in there until that condition is relieved.

Mr. EVINS. In one case, we have difficulty because we have too much water and in another instance we have difficulty because there is not enough water.

Mr. JENNINGS. Yes, sir.

Mr. EVINS. According to the records of the committee, the Bureau promised in 1947 to turn this project over to local people for operation and maintenance. This is the Bureau of Reclamation request for 1956. Yet, there has been no substantial accomplishment to this end.

Just when may we expect your proposal to be fulfilled?

Mr. JENNINGS. All that is being operated on this project is the Platoro Reservoir. The Platoro Reservoir is operated for irrigation and flood control purposes, we have now entered the 5-year development period and at the end of that period we anticipate we will ask those people to take over and operate and maintain that reservoir.

TERMINATION OF REQUEST FOR FEDERAL FUNDS

Mr. EVINS. When will be the end of the 5-year development period?

Mr. JENNINGS. It will end in 1959, sir.

Mr. EVINS. What time in 1959?

Mr. JENNINGS. I do not have the exact date whether it is January 1 or June 30.

Mr. EVINS. Supply that for the record, will you Mr. Jennings?

(The date to be supplied is as follows:)

The 5-year development will end on December 31, 1958.

Mr. JENNINGS. I would like to state here that I am quite new in that area, having been there a little over 4 months. Any of these projects that we can turn over to the water users, we will certainly do.

Mr. EVINS. I will read from the Interior Department appropriation for 1955 at pages 10 and 11 to repeat for the record:

Mr. JENSEN. And if I am not mistaken this is one of the many projects and this is referring to the San Luis Valley project—this is one of the many projects that in the years 1947 to 1948, the Bureau requested a certain amount of money for completion of each of the projects and promised the committee and the Congress that if we allowed the Bureau the amount of money requested, they would never ask for another appropriation for these projects.

In 1956 we are being asked to appropriate additional money.

Mr. JENNINGS. Wasn't that for construction, sir?

Mr. EVINS. 1947 and 1948 we allowed every dime the Bureau requested for this project.

Mr. NIELSEN. I think Mr. Dominy can probably give us some background on that.

Mr. DOMINY. I will be glad to go into that a little bit for the committee, Mr. Chairman. Forty percent of Platoro Dam is allocated to flood control. The dam was built for the combined purpose of flood control and irrigation. At the time it was built we recognized, and the plan has developed around the fact, that the only water that could be stored for irrigation is wild flood flows above that that could be diverted under normal stream diversion or water already appropriated, but where the appropriators give consent to store because the regular flow of the river has been for many years fully appropriated. As a matter of fact, over appropriated, so that the land suffered for lack of natural flow water in the later months of the normal season.

So we recognized that the only rights we have in Platoro Dam for storage are the amounts in the early spring of the year that are in excess of that which can be diverted under natural flow conditions. Now, to store additional water we have to have the consent agreements from the local ditch companies and private individuals that hold those prior natural flow rights.

They have yet to execute those consent agreements, so we are without authority under Colorado water laws to store water. The fact remains we have a control structure on the river and even with the gates wide open, if we have a good season and the normal snow pack that comes off rather rapidly, there will be some storage in spite of anything we can do, because the dam will not evacuate as fast as the water runs in. There is a 3-State compact involving Colorado, New Mexico, and Texas and under that compact in any year that Colorado is in a deficit position, to the lower States, any storage that occurs is supposed to be held and released only upon demand of the lower States.

So, as we now stand we will operate Platoro Dam to release as much natural flow water as can possibly be done with the gates wide open. If there is sufficient water so that we end up with some water there above that that would normally go down, we have to hold it until either New Mexico or Texas gives us a request to release it in satisfaction of that compact.

Now, there is at present a suit between Texas and New Mexico over provisions of that compact. There is at present a great controversy among the three States as to the provisions of that compact. We are doing our best to stay out of that. We don't think we are the arbiters of that compact. We believe that is something for the three States to resolve, but until that deficit picture clears up——

Mr. EVINS. I would be largely in agreement with what you have said. My point is that wouldn't it be more honest and wouldn't it be more realistic not to come forward before the committee every year and state, "We are going to turn this over to local interests and ask for money for 1 more year so we can complete the project and turn it over to local interests," when as a practical matter it can't be done? Apparently you have been repeating requests for funds every year under that basis and the assumption that next year you will turn the project over to local interests. I don't think it is realistic.

Mr. DOMINY. I agree thoroughly. I am under the impression that we have not ever indicated an early transfer to water users of Platoro Dam. Platoro Dam is 40 percent flood control. We ask for funds

annually for maintenance, 40 percent of which is nonreimbursable as a flood-control facility.

I have never thought that we would at a very early date be transferring Platoro Dam to the water users.

CARLSBAD PROJECTS, MIDDLE RIO GRANDE, AND RIO GRANDE PROJECT, NEW MEXICO-TEXAS

Mr. EVINS. Under Carlsbad project, insert page 550, and the middle Rio Grande insert in the record page 552. Please also insert on the Rio Grande project, New Mexico-Texas, pages 554, 555, and 556.

(The pages referred to are as follows:)

CARLSBAD PROJECT, NEW MEXICO

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$12,523
Fiscal year 1955:	
Allotment	2,910
Funds advanced by water users	8,750
Total obligations, 1955	11,660
Fiscal year 1956:	
Allotment	3,000
Funds advanced by water users	9,000
Total obligations, 1956	12,000

Work proposed, 1956

Multipurpose facilities	Program, 1956	Increase or decrease from 1955
Storage system: For continued operation and maintenance of Alamogordo Dam and Reservoir	$10,500	−$1,160
Replacement and improvements: For replacement of 1 pick-up truck	1,500	+1,500
Total obligations	12,000	+340

MIDDLE RIO GRANDE PROJECT, NEW MEXICO, CHANNEL RECTIFICATION DIVISION

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$65,800
Allotment, fiscal year 1955	$170,770	
Total obligations, 1955		170,770
Allotment, fiscal year 1956	190,000	
Total obligations, 1956		190,000

Work proposed, fiscal year 1956

Multipurpose facilities	Program, 1956	Increase or decrease from 1955
Carriage system: For continuing operation and maintenance of 56 miles of channel rectification works in and above the headwaters of Elephant Butte Reservoir	$136,000	+$7,230
Replacements and improvements: For purchase of vehicles and work equipment, and improvement of floodway pilot channel connections	54,000	+12,000
Total obligations	190,000	+19,230

Rio Grande Project, New Mexico-Texas

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$2,002,469
Fiscal year 1955:	
Allotment	851,230
Funds advanced by water users	915,000
Total obligations, fiscal year 1955	1,766,230
Fiscal year 1956:	
Allotment	942,100
Funds advanced by water users	885,000
Total obligations, fiscal year 1956	1,827,100

Work proposed, 1956

The entire project is operated by the Bureau of Reclamation using funds advanced by the water users and appropriated funds.

	Program, 1956	Increase or decrease from 1955
MULTIPURPOSE FACILITIES		
Storage system: This amount is required for the continued operation and maintenance of Elephant Butte and Caballo Dams together with the Elephant Butte Camp area	$62,300	+$100
Replacements and improvements: Replacement of minor equipment at Elephant Butte and Caballo Dams, complete placing heavy riprap below Percha Arroyo diversion channel cutoff wall at Highway 85 bridge, and modification of replacement of emergency shutter gate at Elephant Butte Dam	21,000	+6,600
Total obligations—multipurpose facilities	83,300	+6,700
IRRIGATION FACILITIES		
Carriage system: For the continuation of normal operation and maintenance of the Percha, Leasburg, and Mesilla diversion dams and the Franklin, Riverside, and Tornillo Headings	31,178	+1,447
Distribution system: For the continuation of normal operation and maintenance of the project canal and lateral system. Increase is in estimate for operation and maintenance	636,089	+67,663
Drainage system: For the continuation of normal operation and maintenance of the drainage system	35,614	−63
Replacements and improvements: To provide for the replacement of worn-out timber structures on the canals, laterals, and drains, the purchase of additional heavy equipment and the replacement of obsolete and wornout equipment	182,119	−99,047
Total obligations—irrigation	885,000	−30,000
POWER FACILITIES		
Electric generation: For normal operation and maintenance of Elephant Butte powerplant on a continued basis, applying 3 shifts daily consisting of 1 control room operator and 1 assistant operator per shift	93,320	−5,270
Other production expense: This amount is required to cover anticipated purchase of electrical energy. This requirement will provide for the purchase of power in amounts and at rates established by contracts	606,200	+68,900
Transmission expense: For the continued normal operation and maintenance of transmission facilities	119,880	+7,640
Replacements and improvements: To provide a turbine change and other minor replacements and improvements at Elephant Butte powerplant, equipment replacements as required, such as lightning arrestors, current and potential transformers, relays, etc., to transmission system. Provide for mobile radio equipment, improve relaying at central substation, relocate lightning arrestors at Elephant Butte switchyard. Replace 2 passenger cars, 2 pickups, shop and lab equipment	39,400	+12,900
Total obligations—power	858,800	+84,170
Total obligations—all facilities	1,827,100	+60,870

RIO GRANDE PROJECT, NEW MEXICO-TEXAS

Mr. EVINS. I notice that the Bureau is maintaining irrigation facilities on the Rio Grande project, including the projects channe and lateral system at $885,000 for next year. Please give us a state ment for the need for this amount of money to maintain these projects

Mr. JENNINGS. That is money advanced by the water users for op eration of irrigation features of the project, sir. It is not appropri ated money.

Mr. EVINS. When is it planned, if at all, to turn this project over t local interests?

Mr. JENNINGS. The project is an old project and it does not contai the usual provisions in a repayment contract which permit the turn ing over the project to water users at the option of the Secretary We have in the past negotiated very seriously trying to get these peo ple to accept the operation and maintenance of this project. How ever, we have two States involved. We have a condition where w are diverting water in New Mexico for the State of Texas. We hav certain commitments to the Boundary Commission and to Mexico We have flood control, power, all of these other complications which make it a highly involved project and the people do not want to tak the project over. We would like for them to do it if they would.

FALCON DAM PROJECT

Mr. EVINS. What type of contract have you negotiated for th sale of power for the Falcon Dam project?

Insert pages 568 and 569 on Falcon Dam project, Texas.

(The pages are as follows:)

FALCON DAM POWER, TEXAS

PROJECT DATA

Authorization

The Department of Interior was designated marketing agent for power gen erated at Falcon Dam by Public Law 406, 83d Congress, 2d session. Depart mental order 2765 of June 30, 1954, delegated to the Commissioner of Reclamation the authority vested in the Secretary of the Interior by the Falcon Dam Act o June 18, 1954.

Location

This justification covers the costs involved in the marketing of power generated at Falcon Dam, an international dam on the Rio Grande in Zapata County, Tex

Description

Activities consist of review and coordination with the International Boundary and Water Commission in connection with power studies to estimate future available power; the annual preparation of the average rate and repayment study; and administration of the power sales contract including monthly billing and collecting.

Status

A contract was consummated on October 1, 1954, with the Central Power & Light Co. to dispose of the generated power.

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		
Allotment, fiscal year 1955	$10,000	
Total obligations, fiscal year 1955		$10,000
Allotment, fiscal year 1956	4,500	
Total obligations, fiscal year 1956		4,500

Work proposed, 1956

Activities during fiscal year 1956 will consist of review and coordination with International Boundary and Water Commission in connection with power studies to estimate future available power; the annual preparation of the average rate and repayment study; and administration of the power sales contract including monthly billing and collecting. Except for reviews in the offices of the Commissioner and Chief Engineer, all of the Bureau of Reclamation activities will be performed in the region 5 regional office. The average rate and repayment study will include operation and maintenance costs supported by these funds and appropriated funds in the operation and maintenance activity will be repaid by power revenues.

	Program, 1956	Increase or decrease from 1955
POWER FACILITIES		
Transmission and distribution expense: For marketing of power generated at Falcon Dam	$4,500	−$5,500
Total obligations	4,500	−5,500

Mr. JENNINGS. Could I make a brief explanation of that project?

Mr. EVINS. Yes; you may.

Mr. JENNINGS. Power and energy generated at Falcon Dam, an international reservoir project constructed on the Rio Grande and jointly operated by the United States and Mexico pursuant to the treaty of February 3, 1944, is made available to the Secretary of the Interior for marketing, as authorized under Public Law 406, 83d Congress, 2d session. After assignment of marketing responsibility to region 5 of the Bureau of Reclamation, a temporary contract was approved by the Secretary and executed by the Bureau of Reclamation for disposal of power and energy to Central Power & Light Co. from Falcon, which is effective until June 30, 1955. In order to negotiate a long-term, firm-type contract, it appears that any firm power generated at Falcon will be negligible compared to that of secondary and/or dump, which is requiring at this time additional studies to be made in order to determine the amounts of firm, secondary, or dump energy available until such time as reregulation of this project is established.

This request of $4,500 is required by the Bureau for continuous administration of revised rate studies for sale of power, revisions of the average rate and repayment studies, billing and collecting of power revenues, and necessary reporting of marketing activities.

Mr. EVINS. What type of contract have you negotiated?

Mr. JENNINGS. We only have a temporary contract for a 1-year period. We are presently making some studies trying to determine what type of power will be available from the installation and then

we propose to negotiate a contract, only after those studies have been completed.

Mr. EVINS. Who is the contract with?

Mr. JENNINGS. The temporary contract is with the Central Power & Light Co.

Mr. EVINS. Where do they pick up the power, at the dam?

Mr. JENNINGS. At the dam; yes, sir.

Mr. EVINS. How far advanced is this project? When will power be available?

Mr. JENNINGS. It is being generated at the present time, sir. There was power sold last month.

Mr. NIELSEN. It is entirely seasonal energy now.

Mr. JENNINGS. Power generation is secondary. Water use is given the primary and first priority.

Mr. EVINS. You have a temporary contract with this Central Power & Light on a 1-year basis?

Mr. JENNINGS. On a 1-year basis as was approved by the Federal Power Commission.

Mr. EVINS. Is it planned to enter into a long-term contract with them or to negotiate with others?

Mr. JENNINGS. I do not know at this time.

Mr. NIELSEN. I can answer that. After we determine the character of the energy, we are going to see how it can best be disposed of.

Mr. EVINS. What consideration is the Bureau giving to that section of the law which states that preference in sale of such power and energy shall be given to public bodies or cooperatives?

Mr. NIELSEN. A group of cooperatives is anxious to get in there. Unfortunately they have no generating capacity of their own and we just don't see how they are going to back up this secondary energy without generating capacity of their own. We are going to try to work it out with them. We don't know the answer now.

Mr. EVINS. Are you speaking of the cooperatives?

Mr. NIELSEN. Yes, sir.

Mr. EVINS. They want to use the power but you are selling it to private power companies and you are not giving much consideration to preference laws thus far.

Mr. NIELSEN. That is always before us. We don't get much chance to overlook it, as a matter of fact. The existing contractor, sir, the Central Power & Light Co., came in there originally with construction energy. The company had the only line on which we could wheel Bureau energy back out of there. It has the only generating capacity in the area as well. It is the only one who could firm up that secondary energy. Our representative was to meet last week with the cooperatives down there and explore the situation fully with them and when we find out what they can do, and when we find out the kind of energy we are going to have, we are going to try to work it out with them.

So, there is no assurance that they are going to be able actually to participate in this energy, not by reason of our unwillingness but by reason of lack of generating capacity of their own to firm up the secondary.

Mr. EVINS. This does not, as I interpret it, impose upon the Bureau the question of determining their firming possibilities or capabilities. The law is mandatory and says "preference shall be given to public bodies and cooperatives."

Mr. NIELSEN. We do have to tell them the kind of energy, so they will know what they are buying and so the United States does not get the utility responsibility of having to firm up its own secondary energy.

Mr. JENNINGS. It is also a matter of facilities available for them to receive power, sir.

Mr. EVINS. Insert in the record at this point of the justifications Public Law 406, 83d Congress, an act to authorize the transmission and disposition of the Secretary of the Interior of electric energy generated at Falcon Dam on the Rio Grande River.

(The material requested is as follows:)

PUBLIC LAW 406—83D CONGRESS

CHAPTER 310—2D SESSION

S. 3090

AN ACT To authorize the transmission and disposition by the Secretary of the Interior of electric energy generated at Falcon Dam on the Rio Grande

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the electric power and energy generated at Falcon Dam, an international storage reservoir project constructed on the Rio Grande pursuant to the treaty of February 3, 1944, between the United States and Mexico (Treaty Series 994), which is made available to the United States under the provisions of said treaty and under such special agreements as may be concluded between the two Governments pursuant to the provisions of said treaty and not required in the operation of such international project, all as determined by the Commissioner of the United States Section, International Boundary and Water Commission, shall be delivered to the Secretary of the Interior (hereinafter referred to as the Secretary) who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission. Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the project) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power by the Secretary, in collaboration with the Secretary of State, over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary is authorized, from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said project available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies.

SEC. 2. All receipts from the sale of electric power and energy disposed of by the Secretary pursuant to this Act shall be covered into the Treasury of the United States to the credit of miscellaneous receipts as shall also moneys received from the Government of Mexico for any energy which might be delivered to that Government by the United States Section of the International Boundary and Water Commission pursuant to any special agreement concluded in accordance with article 19 of the said treaty.

SEC. 3. The Secretary is authorized to perform any and all acts, including the acquisition of rights and property, and to enter into such agreements as may be appropriate for the purpose of carrying out the provisions of this Act applicable to him; and with respect to construction and supply contracts and the acquisition, exchanges, and disposition of lands and other property, and the relocation thereof, the Secretary shall have the same authority which he has under sections 12 and 14 of the Reclamation Project Act of 1939.

Approved June 18, 1954.

Mr. EVINS. Did the Federal Power Commission approve the schedule of rates on this sale?

Mr. JENNINGS. Only on a temporary basis, yes, sir.

Mr. EVINS. And was this the only applicant to the purchase?

Mr. JENNINGS. It was with the only one that had facilities to take the power at this time, which was given on a purely temporary basis until such time as studies could be made of the situation, sir.

Mr. EVINS. That was the reason for making it a temporary contract?

Mr. JENNINGS. Yes, sir.

Mr. EVINS. We thank you gentlemen for your testimony and for your statements.

COLORADO BASIN

WITNESSES

BUREAU OF RECLAMATION

E. G. NIELSEN, ASSISTANT COMMISSIONER
E. O. LARSON, REGIONAL DIRECTOR, SALT LAKE CITY, UTAH
J. P. JONES, REGIONAL DIRECTOR, BOULDER CITY, NEVADA
F. E. DOMINY, CHIEF, IRRIGATION DIVISION
A. R. GOLZÉ, CHIEF, PROGRAM COORDINATION AND FINANCE DIVISION

CORPS OF ENGINEERS

COL. ALFRED D. STARBIRD, ASSISTANT CHIEF, CIVIL WORKS FOR FLOOD CONTROL
HARRY COHEN, ASSISTANT CHIEF, PROGRAM BRANCH, CIVIL WORKS
JOE BRENNAN, CHIEF, PROJECTS DEVELOPMENT BRANCH, CIVIL WORKS

Mr. EVINS. The committee will hear tonight the witnesses from the Corps of Engineers and the Bureau of Reclamation with respect to the Colorado River Basin.

It is noted in the justification that the two agencies are requesting $15,635,000 for the Colorado Basin, including $179,000 for the Corps of Engineers, and $15,456,000 for the Department of the Interior.

Mr. Reporter, insert in the record the summary tables and the usual factual data.

(The documents referred to follow:)

Colorado Basin—Budget estimate, fiscal year 1956

Appropriation	Corps of Engineers	Interior-Reclamation
General investigations	$20,000	$1,209,500
Advance engineering and design	155,000	
Construction		9,146,000
Operation and maintenance	4,000	5,100,500
Total	179,000	15,456,000

BUREAU OF RECLAMATION—CONSTRUCTION AND REHABILITATION

Adual unobligated balance, June 30, 1954, and Mar. 31, 1955, and estimated, June 30, 1955, Colorado Basin

Project	Actual unobligated balance, June 30, 1954	Actual unobligated balance, Mar. 31, 1955	Estimated unobligated balance, June 30, 1955		
			Field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Gila, Ariz	$76,136	$1,583,344	$470,000	----------	$470,000
Yuma auxiliary, Ariz	----------	47,302	37,000	----------	37,000
Colorado River front work and levee system, Arizona-California-Nevada	263,902	173,441	145,000	----------	145,000
Parker-Davis, Arizona-California-Nevada	118,558	397,143	50,000	$60,000	110,000
Boulder Canyon, Arizona-Nevada	208,665	1,027,990	1,010,000	----------	1,010,000
Boulder City, Nev	----------	15,714	----------	----------	----------
Eden, Wyo	104,731	253,465	25,000	55,000	80,000
Drainage and minor construction	999,622	500,851	468,130	----------	468,130
Rehabilitation and betterment	1,614	102,049	----------	----------	----------
Total, Colorado Basin	1,773,228	4,161,308	2,205,130	115,000	2,320,130

GENERAL STATEMENT

Mr. NIELSEN. The Colorado Basin consists of the drainage area of the Colorado River and its tributaries and includes all of the State of Arizona, substantial portions of Utah, Wyoming, and Colorado, and parts of Nevada, California, and New Mexico.

The Colorado River has a length of 1,400 miles, and with its tributaries forms one of the larger river systems of the United States. The topography of the basin ranges from the high Wyoming plateau, and the western slope of the Continental Divide in Colorado to the desert plains of southern Arizona and California.

The hydrology of the area is typical of the arid West, with practically all preciptiation for the river system falling in the mountains of the upper basin as snow during the winter and spring season. The problems of the basin center on developing adequate water supplies for domestic and industrial use and for agriculture.

Agriculture is ranked as the most important industry in the basin, and most of this agriculture is dependent on irrigation using waters of the Colorado and its tributaries. These rivers supplied by snowmelt are characterized by high floods in the spring and low flows in the summer growing season. The basic problem for full development of the basin thus becomes the conservation and maximum utilization of the water available, through storage of flood flows and their later release and distribution for irrigation, domestic, and industrial use. Generation of hydroelectric power is an important part of the basin development, providing energy for irrigation, domestic, and industrial use. Generation of hydroelectric power is an important part of the basin development, providing energy for irrigation pumping and revenues to assist in repayment of project costs.

Although not in the basin, the great urban concentrations in the south coastal area of California—Los Angeles and San Diego—lie immediately adjacent to the Colorado River Basin and are dependent upon the Colorado River for a major portion of their electric power and water to supply homes and industries.

Navigation in the Colorado Basin is limited to a very minor amount of small-boat traffic on the reservoirs created by the Bureau of Reclamation's multipurpose dams. There is no through commercial river traffic on the Colorado and none of the storage structures have commercial navigation benefits.

The Colorado Basin above Lee Ferry is sparsely settled and the flood problem is limited, in general, to small urban and agricultural developments. In the lower basin, however, high valued agricultural areas have been subject to large flood damage. Levees have been built on the lower Colorado River in the Colorado River Indian Reservation by Bureau of Indian Affairs, in the Palo Verde Valley by local interests, in Yuma Valley by the Bureau of Reclamation, and in Mexico principally by United States interests concerned with the protection of the Imperial Valley. The inadequacy of these levees in the control of Colorado River floods was a major influence in the demand for the construction of Hoover Dam.

Substantial flood-control benefit in the Colorado Basin is now obtained in the multipurpose storage reservoirs constructed for irrigation, power, and domestic water supply purposes. Damage on the main stem of the Colorado from floods originating above Lee Ferry is controlled in substantial measure by Hoover Dam.

Davis Dam and Parker Dam, both of which are complete and in operation, provide some supplemental control. There are no additional projects with flood-control benefits now authorized to the Bureau of Reclamation on the Colorado, although the Bureau does a limited amount of channel maintenance by dredging.

The Upper Colorado storage project, now under consideration in the Congress, will furnish flood control on the main stem Upper Colorado River when constructed. If this project is authorized in this session, the President's budget provides for $5 million to start some new construction in fiscal year 1956.

The Corps of Engineers has studied the flood-control problems and considered project proposals in all parts of the Colorado Basin. Surveys have been completed for six areas. In addition, 13 additional examinations and surveys are authorized, of which 2 are actively in progress.

As a result of the investigations by the Corps of Engineers, 1 levee project and 5 reservoirs have been authorized as civil projects. A detention basin and channel has been authorized as a military project. Of the 7 projects, 1 is complete, 3 are in the advance planning stage, and 3 have not been started. The Holbrook levee, completed in December 1948 at a cost of $335,000, consists of a levee a little over a mile in length on the right bank of the river to protect the town of Holbrook and the main line of the Santa Fe Railway.

Authorized flood-control projects include: Painted Rock Reservoir, Ariz., to control partially the immense spread from the Gila River, Ariz.; Alamo Reservoir on Bill Williams River, Ariz.; Whitlow Ranch Reservoir on Queen Creek, Ariz.; Mathews Canyon and Pine Canyon Reservoirs on tributaries of Meadow Valley Wash, Nev.; and the Trilby Wash detention basin and outlet channel on tributaries of the lower Agua Fria River, Ariz.

No flood-control project is under construction by the Corps of Engineers. However, advance planning for the Trilby Wash detention basin is essentially complete. Construction funds have been

made available to permit the initiation of construction in fiscal year 1955; it can be completed in fiscal year 1956. No new starts are programed for fiscal year 1956.

Provision of water for irrigation, domestic, and industrial use is the major goal of the Bureau's program in the Colorado Basin. This objective is attained through the construction of storage reservoirs that conserve spring runoffs and carriage and distribution systems to convey the water to the point of use. As is most of the arid West, there is in the Colorado Basin more arable land than can be irrigated because of the limited water supply. As a result irrigation projects proposed for development are selected on the basis of maximum benefits for the use of the available water. The intensive upper basin investigation program is financed chiefly with funds derived from revenues accruing to the Boulder Canyon project.

Irrigation in the Colorado Basin by the Bureau of Reclamation began in 1903 with construction of the Salt River project in Arizona and has continued to the present. At present there are no authorized irrigation projects in the Colorado Basin on which construction has not been started, except the Collbran project in Colorado. Construction is now active on 8 projects with irrigation benefits and 2 other irrigation projects are being rehabilitated. Construction of the Palo Verde diversion dam, to divert Colorado River water into the existing irrigation works of the Palo Verde Irrigation District, is scheduled for fiscal year 1956.

Power generation by the Bureau of Reclamation is incident to the storage of water for irrigation and domestic use. Where economically justified to produce energy for pumping of water and as an aid to repayment of costs beyond the ability of the water users, power facilities are installed in connection with multipurpose storage reservoirs. Where necessary to delivery power to preference customers, transmission lines are constructed by the Bureau of Reclamation in connection with its power generation. In the Colorado Basin generating facilities have been installed as part of the Boulder Canyon, Parker-Davis, and All-American Canal projects, and transmission facilities have been constructed by the Parker-Davis project to carry the power generated to load centers. Energy from the Hoover powerplant on the Boulder Canyon project is transmitted to the Los Angeles area over lines constructed by the allottees and to Arizona and Nevada over the Parker-Davis transmission system. Construction of presently scheduled Parker-Davis transmission lines, except for substation additions needed to meet load growth, will be completed in fiscal year 1956.

The only remaining authorized power-generating facility presently uninstalled consists of a 104,500-kilowatt unit in the Hoover powerplant. No other power projects are authorized at this time. The upper Colorado storage project, now under consideration in the Congress, would provide additional power-generating facilities. The Corps of Engineers has given consideration to power development at all authorized reservoir projects. The only authorized project that includes provision for a small power development is Alamo Reservoir in Arizona.

Multipurpose projects constructed by the Bureau of Reclamation provide other benefits beside those previously discussed. Some of these are recreation, silt retention, and fish and wildlife habitats.

These benefits, which are incident to the primary purposes of water conservation and utilization, are in the aggregate of considerable importance. Particularly, the recreational facilities made available by the establishment of large reservoirs in arid areas have created a wholly new segment of the economy and added materially to the income of the locality. Lake Mead, created by Hoover Dam, is an excellent illustration of these other benefits.

Here, over 2 million people annually take advantage of the boating, swimming, excellent fishing, and other attractions of climate and recreation in an area seen only by a few prospectors and engineers before construction started.

Existing water storage and conservation structures in the Colorado Basin have been constructed by the Department of the Interior. These consist largely of the Bureau of Reclamation's dams on the main stem of the Colorado, which are operated under a master plan for control and regulation of the river flows. Exchange of data and coordination of planning of multiple-purpose improvements between the Corps of Engineers and the Bureau of Reclamation has avoided duplication of effort. Further coordination is carried on with other Federal agencies and local agencies of the States involved. Through this master plan approach, maximum utilization of the available water is secured and flood protection is provided most efficiently by the pooling of available storage. Potentialities of the basin are great. Rapid growth of population, agriculture, and industry in the area demands planning and construction for the control and utilization of the natural resources of the region.

Mr. EVINS. Thank you very much for your fine statement.

PRESENT STATUS OF DAMS IN THE COLORADO RIVER BASIN

Could you tell us how many dams have been built on the Colorado River, within the United States? How extensive have been the development of dams on the river? How many are there?

Mr. NIELSEN. If you are going to take all of them on the tributaries, private and Federal, I would have to search out the records for you.

Mr. EVINS. Approximately.

Mr. NIELSEN. I wouldn't like to guess. I would say there would be hundreds of structures in the river system. I can give you the main ones, however.

Mr. EVINS. How many large dams?

Mr. NIELSEN. I would say the topmost one is the one for the Grand Valley project on the Colorado River near Grand Junction. The Taylor Park Dam—Mr. Larson, would you give them in your region and I will give them for region 3.

Mr. EVINS. Name some of the larger dams on the Colorado River, for the record.

Mr. LARSON. There are no large dams on the main stream or the main tributaries in the upper basin, but there are several dams built with Federal funds on the smaller tributaries. The Strawberry Dam, or the Strawberry Valley project for transmountain diversion into the Salt Lake Basin, is one.

Next are the Moon Lake Dam and the Midview Dam for the Moon Lake reclamation project on the Duchesne River system, in Utah. There is the large diversion dam for the Grand Valley project,

mentioned by Mr. Nielsen; the Taylor Park Dam near Montrose, Colo.; the small Fruit Growers Dam for the Fruit Growers project near Delta, Colo.; the Jackson Gulch Dam for the Mancos project near Mancos, Colo.; the Vallecito Dam on the Pine River; for the Pine River project in Colorado; and the Big Sandy Dam in Wyoming for the Eden project recently completed.

Mr. NIELSON. I will pick up a couple you have overlooked because they are not in region 4 or region 3. The Green Mountain Dam on the Blue, the Shadow Mountain and Granby Dams on the main stem of the Colorado, near Rocky Mountain National Park.

Mr. EVINS. How about Hoover Dam?

Mr. NIELSEN. I am just about to come to the lower basin.

Hoover Dam is farthest upstream in the lower basin. Next downstream is Davis Dam, then next downstream is Parker, then next downstream is Headgate Rock and then a diversion weir for the Palo Verde Irrigation District. Next follows Imperial Dam for the diversion to the All-American Canal and for the Gila project. Also the Laguna Dam formerly used for diversion to the Yuma project and now used for river regulation.

On the Salt River system you have Bartlett and Horseshoe on the Verde River; Roosevelt, Horse Mesa, Stewart Mountain, and Mormon Flat on the Salt; Coolidge on the Gila and finally we have Morelos on the Colorado River, just over the line in Mexico.

Those are the major structures on the Colorado River and Gila in the lower basin.

Mr. EVINS. Would you say there are as many as 50 dams on the main Colorado River and the tributaries?

Mr. NIELSEN. We have skipped the small ones.

Mr. EVINS. How many major dams would you say are on the main stem of the Colorado?

Mr. NIELSEN. I would put it at 10 or 12, as a guess.

Mr. EVINS. Your statement points up the fact that there is in the Colorado Basin more arable land than can be irrigated because of limited water supply.

Mr. NIELSEN. Yes, sir.

Mr. EVINS. How many more dams would it take to irrigate a lot more of the land out there?

Mr. NIELSEN. Mr. Larson can tell you how many he has in his plans. I can say that in the lower basin, we don't need too many more. We are going to run out of water. We have the water well controlled in the lower basin. Mr. Larson has a substantial plan for his area.

UPPER COLORADO RIVER BASIN

Mr. EVINS. Tell us about the upper Colorado Basin and the problem there.

Mr. LARSON. In the upper Colorado River there is now a depletion for irrigation projects of about two and a half million acre-feet out of a total of about seven and a half million to which the upper basin is entitled under the Colorado River compact of 1922. The flow of the Colorado River is so erratic being as low as 4 million acre-feet in years like 1934, to as high as 22 million acre-feet in the high runoff years, that large regulatory reservoirs are required if the upper basin States are to use their full share of the water.

Storage is not only required to regulate the stream for irrigation, industrial, and municipal uses for the future, but we must also have a major amount of capacity for the retention of silt at the lower end of the basin, and that retention, incidentally, is of great benefit to the lower basin by prolonging the live capacities of Lake Mead and the other reservoirs in that basin.

We do have plans in our Colorado storage project ultimately for a total storage of about 47 million acre-feet in 9 major reservoirs.

In addition to that, there are many comparatively small storage reservoirs required for the individual projects as they are built over the years. We have estimated it will require anywhere from 50 to 75 years for full development of all the water to which the upper basin is entitled.

Mr. EVINS. Will these nine major storage reservoirs, if developed, impair or impede or damage the lower Colorado River and the people in that area?

Mr. LARSON. No; I would say they would not. They would be operated in strict conformance to the compact of 1922 which divides the water between the upper and the lower Colorado River Basin, and the plan is to operate them in strict accordance with that compact and the Mexican treaty.

Mr. NIELSEN. To be completely safe, I think you'd better say that question is before the Supreme Court.

Mr. EVINS. I want to know if there will be damage to the people in the lower end if the storage reservoirs are built in the upper Colorado.

Mr. LARSON. I was going to qualify my statement by saying that the plan is not intended to interfere. There are matters of interpretation of the compact which are now before the Supreme Court.

SUIT BEFORE THE SUPREME COURT

Mr. EVINS. Now, tell us briefly for information what the issues before the Supreme Court are.

Mr. NIELSEN. Well, I will try.

Mr. EVINS. Not in detail.

Mr. NIELSEN. The suit was initiated by Arizona asking the Supreme Court to give in a sense a declaratory judgment that Arizona is entitled to 2,800,000 acre-feet of main stem water and that in essence she is using in the neighborhood of 1,700,000 acre-feet now. She has brought into the suit all the interested California agencies. The California agencies have responded by saying "what you are talking about goes to a definition of beneficial consumptive use." The Colorado River compact uses the words "beneficial consumptive use." The final definition that the Court gives us of "beneficial consumptive use" will affect all of the States of the basin and it appears that the States of the upper basin should be brought into the suit, and that is where we are now.

Mr. EVINS. The funds that are being requested here by the Bureau of Reclamation are for studies and investigations to determine the facts in this area?

Mr. NIELSEN. Part of it.

Mr. EVINS. To clarify the situation in the upper Colorado Basin.

Mr. NIELSEN. No, sir. Some part of the funds which have been requested for the lower basin go to the development of data for the

Department of Justice to use in the suit. We are called upon to provide that service.

The Department of the Interior is not actively in the suit. The Department of Justice is handling it for the United States, of course.

Mr. EVINS. Shouldn't the Department of Justice get their appropriations from another committee?

Mr. NIELSEN. They seem to have the power to require these services of us.

Mr. MURRAY. Is the suit a suit against the United States?

Mr. NIELSEN. I think the United States came in as an intervenor. I am not an attorney.

Mr. MURRAY. The United States came in as an intervenor?

Mr. NIELSEN. Yes.

Mr. MURRAY. And they have asked your Department for——

Mr. NIELSEN. The Department of Justice conducts the suit on behalf of the United States, whatever that participation might be.

Mr. MURRAY. They requested you to secure the evidence.

Did you request them to come in as an intervenor?

Mr. NIELSEN. I am not certain but I believe that Congress asked, or at least was a party to the United States coming in.

Mr. MURRAY. You mean Congress passed some type of legislation that required the United States attorney to intervene?

Mr. NIELSEN. I don't know the details of that process. I do know that California and Nevada had a bill at one time suggesting that process, and how the United States finally got in, the attorneys figured that out.

Mr. MURRAY. I think it would be pertinent as to who is supposed to pay for the evidence. That is the only thing I am wondering about, why your Department would request an appropriation to pay for evidence in a litigation that was instituted by the Attorney General, that your Department hadn't requested or hadn't anything to do about.

Mr. NIELSEN. When our attorneys in our Solicitor's office tell us we should be getting that information, we try to get it.

Mr. MURRAY. Will the eventual result of this litigation have any effect, whichever way it might turn out, on the construction program?

Mr. NIELSEN. It will have a physical effect; yes. If Arizona's contentions are upheld you can expect the central Arizona project to come to life again and be sought in the Congress.

Mr. MURRAY. What about the other projects? What about these present projects?

Mr. NIELSEN. If the answer is favorable to the upper basin States it will have the physical effect of permitting construction to go ahead in the upper basin without fear of a lawsuit.

Mr. MURRAY. Well, what——

Mr. NIELSEN. It will enable the upper basin to deplete the stream more, and as a result less water will pass through the turbines at Hoover, Parker, and Davis; that depletion was anticipated when the projects were set up and their repayment schedules computed.

Mr. MURRAY. Is the suit going to materially affect the requested appropriations? I think that is a material fact in making these appropriations.

Mr. NIELSEN. We are not engaged in any construction, for example, which would be affected by this litigation.

Mr. MURRAY. In the upper basin?

Mr. NIELSEN. No, sir.

Mr. MURRAY. In other words, the litigation has nothing to do with the requested appropriations?

Mr. NIELSEN. No, we will not be building something and have the rug pulled out from under us by reason of an adverse decision of the Supreme Court.

Mr. MURRAY. Are you building something that depends upon a beneficial result of the decision?

Mr. NIELSEN. No, sir.

Mr. MURRAY. Or adverse result?

Mr. NIELSEN. No, sir.

Mr. EVINS. The funds you are requesting are for studies and investigations on the upper Colorado situation, but some of the funds are requested for gathering information to turn over to the Department of Justice.

Mr. NIELSEN. For service to the Attorney General.

Mr. EVINS. I should think that since this is an important project in that area, the true facts in the situation need to be developed for the courts, for the Congress, for the country, and for the well-being of the people.

STATUS OF PROGRAM IN COLORADO BASIN

Mr. JENSEN. You have a number of projects in this budget request for which you are asking, for the Colorado Basin.

Can you tell what the total cost will be of all these projects and what percent of the construction is already done and how much will be completed in fiscal year 1956? I just want to get a picture of how far we are along on the projects that are now under construction in the Colorado River Basin.

Mr. NIELSEN. The only one I think of that is under construction is the Gila.

Mr. JENSEN. Of the projects that are in this budget request, both for the Army engineers and for the Bureau of Reclamation?

Mr. NIELSEN. Could we supply that for the record, Mr. Jensen?

Mr. JENSEN. That is all right.

I like to keep up with the progress of all of these projects in which I have been interested for many years, and to each year know something about how much money has been expended today, what the present estimated cost is on these projects, and how near completion they are percentagewise, and so on.

Mr. NIELSEN. We have that information on the justification of individual projects. You would like to have it picked up in one package?

Mr. JENSEN. Yes, and I would like to have it take in the whole budget request here. On each one of the items, just say, "They are completed up to a certain point. It is going to take so many more dollars to complete. They are completed up to a certain percent."

Mr. NIELSEN. We can summarize those for you.

Mr. JENSEN. All right.

Mr. EVINS. Supply that for the record.

(The information requested follows:)

Bureau of Reclamation, Colorado Basin—Projects active in fiscal year 1955

Project	Total expenditures to Mar. 31, 1955	Percent complete	Balance to complete
Gila, Ariz.	$46,316,320	84.5	$8,506,659
Yuma auxiliary, Arizona	704,813	60.7	455,526
Colorado River front work and levee system, Arizona, California, Nevada	9,897,876	98.3	173,442
Parker-Davis, Arizona, California, Nevada	112,911,700	97.3	3,130,437
Boulder Canyon, Ariz.-Nev.	159,286,208	96.7	5,480,792
Boulder City, Nev.	85,986	50.1	85,714
Eden, Wyo.	4,715,680	64.0	2,652,445
Drainage and minor construction:			
All-American Canal, Ariz.-Calif.	64,399,413	90.5	6,769,680
Mancos, Colo.	3,879,132	99.9	5,000
Paonia, Colo.	2,039,546	30.4	4,670,703
Pine River, Colo.	3,294,100	97.2	47,288
Rehabilitation and betterment: Salt River, Ariz.	4,955,688	82.6	1,044,312

NOTE.—The Corps of Engineers has no projects under construction in this basin.

GILA PROJECT

Mr. JENSEN. The Gila project has been a very interesting one. We added another addition to it, I think, a few years ago. What was that new addition called?

Mr. NIELSEN. The Wellton-Mohawk division.

Mr. JENSEN. That is the last one. That is the one you are working on now?

Mr. NIELSEN. Yes, sir.

Mr. JENSEN. In that area, I believe you are raising a lot of grass seed. What is the story on the seed that you raised there?

Mr. NIELSEN. You are probably thinking of Bermuda grass seed.

Mr. JENSEN. How is the production?

Mr. NIELSEN. That has been a very profitable crop for them. I don't think there is any great expansion of that crop down there. It has been their bread-and-butter money. With more acres coming in they are getting considerably greater diversity.

Mr. JENSEN. You are here supporting the budget, I presume.

Mr. NIELSEN. Yes, sir.

Mr. JENSEN. You are not asking for anything additional over and above the budget, or would you like to tell us if you did ask for some things that the Budget didn't approve?

Mr. NIELSEN. Mr. Golzé, would you like to look that up?

Mr. JENSEN. You have a perfect right to answer that question since a Member of Congress asked for it.

Mr. NIELSEN. Mr. Golzé could give you that project by project.

Mr. EVINS. We will get into the individual projects later and it can be brought out then.

GENERAL INVESTIGATIONS BY CORPS OF ENGINEERS

Mr. EVINS. I note you request $20,000 under general investigations for examinations and surveys by the Corps of Engineers. Which of these studies are you resuming and what is the reason for the resumption?

Colonel STARBIRD. The Whitewater study is a resumption.

It was one interrupted by the Korean war. There are several thousand acres of agricultural land, the city of Palm Springs and certain areas of interest to the Indian Service, all within the area. We believe the projects should be resumed and completed.

Mr. EVINS. The reporter will insert page 1 in the record.

(Page 1 of the justifications follows:)

COLORADO BASIN

JUSTIFICATION OF ESTIMATE

1. Examinations and surveys

(*a*) *Navigation studies.*—None.

(*b*) *Flood-control studies.*—The amount of $20,000 is requested for work on 2 studies in the Colorado Basin during fiscal year 1956. This amount will permit progress on one report and resumption of work on the other.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Arizona: Colorado River and tributaries above Lee Ferry	$127,100	$50,200	$10,000	$66,900
California: Whitewater River	220,200	160,600	10,000	49,600
Total	347,300	210,800	20,000	116,500
Grand total, examinations and surveys	347,300	210,800	20,000	116,500

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. EVINS. You ask for $155,000 for advance planning on two projects. We will insert pages 2 and 3 of the justification.

(The matter referred to follows:)

COLORADO BASIN

JUSTIFICATION OF ESTIMATE

Advance engineering and design

Funds in the amount of $155,000 will be applied to advance engineering and design on 2 flood-control projects in Colorado Basin. These 2 projects having a total estimated cost of $36,538,000 will be brought to a stage where construction can be initiated.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects (none)				
Flood-control projects:				
Arizona: Painted Rock Reservoir	$35,000,000	$329,000	$90,000	$34,581,000
Painted Rock Reservoir would provide flood protection to and is essential for the stabilization of the economy of over 300,000 acres of intensely developed irrigated land along the Gila River in Arizona, along lower Colorado River in Arizona and California, and in Imperial Valley, Calif. In addition, installations adjacent to Salton Sea, including the recently constructed Atomic Energy Commission plant, would be submerged on the occurrence of large Gila River floods that flood Imperial Valley. Railroad lines of the Southern Pacific Co. and the Arizona Eastern Railroad Co., which carry a substantial amount of defense freight and goods, and United States Highways Nos. 80 and 99, connecting Los Angeles and San Diego with the East and South lie in the path of Gila River floods and would be subject to interruption of service unless the Gila River is harnessed. The project would also retain a large volume of sediment that would otherwise be deposited in the Colorado River below Laguna Dam. In addition to the above, the project is vital to the operation of the 1944 Water Treaty with Mexico and the Bureau of Reclamation has raised and strengthened levees on the assumption that Painted Rock Reservoir would be constructed.				
Nevada: Pine Canyon Reservoir	1,583,000		65,000	1,518,000
Pine Canyon and Mathews Canyon Reservoirs are interdependent units in the plan of improvement for flood control on Clover Creek, Meadow Valley Wash, and lower Muddy River. Construction of these reservoirs would provide protection to about 80 miles of the main line of the Union Pacific Railroad, to many miles of county roads along narrow canyons, to much of the town of Caliente, and to about 3,500 acres of irrigated land. Interruption to railroad traffic on the Union Pacific Railroad, a strategic transcontinental line, results in serious shipping losses. The remoteness of the overflow area results in crippling delays. While repairs are going forward, traffic is delayed to (1) the Hoover Dam area; (2) the lead, zinc, magnesium, and glass-sand producing districts essential to the defense effort; and (3) all other areas in the East, Midwest, and West using this vital transportation facility. Uninterrupted freight traffic over this link in the national railroad network are important to supply military and naval bases and to support the civilian economy.				
Total, flood control	36,583,000	329,000	155,000	36,099,000
Multiple-purpose projects including power (none)				
Reexamination of projects in "Deferred for restudy" category (none)				
Grand total, advance engineering and design	36,583,000	329,000	155,000	36,099,000

Mr. EVINS. What local cooperation is required on these projects and what is the status of the assurance of this cooperation?

Colonel STARBIRD. On neither of these is there a requirement for local cooperation that costs money. There is the requirement that the necessary water rights will be adjusted. We have informal assurances that the individuals will take the necessary measures to adjust the water rights.

Mr. EVINS. The law requires local interests to adjust all water rights claims and prevent encroachment on the flood channels downstream. The planning reports state local interests will cooperate to the limit of their abilities. Do you know what those abilities are?

Colonel STARBIRD. No, sir, I can't tell you exactly what the ability is. These two projects are in the planning stage. Before we requested construction funds for that we would crystallize.

Mr. EVINS. Name the projects and the amounts?

Colonel STARBIRD. Painted Rock, $90,000. That amount is necessary to bring it to construction readiness.

The second project is the Pine Canyon Reservoir, a small reservoir, with $65,000 necessary to bring it to construction readiness.

OPERATION AND MAINTENANCE, CORPS OF ENGINEERS

Mr. EVINS. The corps is requesting $4,000 for operation and maintenance.

Mr. Reporter, insert page 4 in the record.

(P. 4 of the justifications follows:)

COLORADO BASIN

JUSTIFICATION OF ESTIMATE

1. Navigation

None.

2. Flood control

(*a*) *Reservoirs.*—The budget estimate of $4,000 for the scheduling of flood-control operation of Hoover Dam in the Colorado Basin is necessary to carry out the responsibility of the Corps of Engineers in the collection transmission and analysis of hydrologic and weather data, the forecasting of seasonal flows, and operation reporting. Continued liaison is maintained with the Bureau of Reclamation as required for coordination. The amount requested in fiscal year 1956 is approximately $2,500 greater than the amount available in fiscal year 1955 due to the necessity for revising the reservoir regulation manual. This amount is the minimum necessary to accomplish regular scheduling activities as well as the essential revision of the manual.

Tentative allocation, fiscal year 1956

Scheduling of flood control reservoir operation	$4,000
Total flood control	4,000
Total Colorado River Basin	4,000

General Investigations, Bureau of Reclamation

Mr. Evins. The Bureau of Reclamation requests $1,209,000 for general investigations. Mr. Reporter, insert pages BR–3 and 8 through 14.

(The pages of the justification referred to follow:)

Summary by activities— Colorado Basin

Activity	Estimated costs of investigations in the current program				
	Estimated total	Total June 30, 1954	Program fiscal year 1955	Program fiscal year 1956	Balance to complete
Engineering and economic investigations	$12,941,875	$7,405,373	$826,563	$1,169,500	$3,540,439
Advance planning	474,000	418,480	15,520	40,000	----------
Investigation of existing projects	32,000	13,786	18,214	----------	----------
Total cost	13,447,875	7,837,639	860,297	1,209,500	3,540,439
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc.	----------	----------	−73,544	----------	----------
Total obligation program	----------	----------	786,753	1,209,500	----------
Less unobligated carryover and funds advanced	----------	----------	−40,519	----------	----------
Allocation of estimate	----------	----------	746,234	1,209,500	----------

Schedule of general investigations program, fiscal years 1955 and 1956, Colorado Basin

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations:							
Reconnaissance:							
Region 3: Lower Colorado River Basin new areas.	Nevada-Arizona.	$350,000	----------	$20,000	$20,000	$310,000	Reconnaissance study of areas in the lower Colorado River Basin which show possibilities of being developed into irrigation projects. Those found worthy of more detailed study will be scheduled as project investigations in later years.
Region 4:							
Cedaredge division, Gunnison River project.	Colorado	70,000	$40,485	19,515	10,000	----------	Reconnaissance of potential project to supply new and supplemental irrigation water to deficient area to determine if project investigations are warranted, if feasible power development exists on Anthracite Creek, and if integration of storage requirements with partially constructed Paonia project is desirable. Report to be completed in fiscal year 1956.
DeBeque project	Colorado-Utah.	83,000	48,290	34,710	----------	----------	Reconnaissance study to determine potential use of DeBeque Reservoir site on Colorado River for power and for irrigation of arable lands in Garfield pumping division, Grand Valley project and new lands in vicinity of Cisco and Thompson, Utah. Study would assist States of Utah and Colorado in selection of projects to use their allotted share of Colorado River water. Effect of this development on potential Dewey Reservoir site needs to be studied also. Report to be completed by end of current fiscal year.
Dulce project	Colorado-New Mexico.	20,000	271	----------	19,729	----------	Reconnaissance of potential project to provide for irrigation of new and supplemental lands should be initiated in fiscal year 1956 to determine if project is economically justified as separate independent development or if integration into potential San Juan-Chama project should be considered before definite plan investigations on that project are completed. Investigation and report to be completed in fiscal year 1956.
Fontenelle project	Wyoming	12,000	1,596	----------	10,404	----------	Deferred reconnaissance of potential project to pro-

Fontenelle project	Wyoming	12,000	1,596		10,404		Deferred reconnaissance of potential project to provide for irrigation of new lands and supplemental water should be resumed to determine if project investigations are warranted and to assist State of Wyoming in selection of projects to use its allotted share of Colorado River water. Report to be completed in fiscal year 1956.
Fremont project	Utah	15,000			10,000	5,000	Reconnaissance of potential project to provide for irrigation of new lands and supplemental water should be undertaken to determine if project investigations are warranted and to assist State of Utah in selection of projects to use their allotted share of Colorado River water.
Henrys Fork project	Wyoming-Utah.	20,000	16,138	3,862			Reconnaissance study initiated in fiscal year 1953 of potential project to provide for irrigation of new lands and for supplemental water to determine if project investigations are warranted. Is necessary to determine justification for project investigations several years in advance in Wyoming to be able to plan expenditure of that State's share of Colorado River Development as required by Barrett bill.
Opal project	Wyoming	16,000	8,367	7,633			Reconnaissance study initiated in fiscal year 1954 of potential project to provide for irrigation of new lands and supplemental water should be resumed to determine if project investigations are warranted and to assist State of Wyoming in selection of projects to use its allotted share of Colorado River water. Report to be completed this coming spring.
Yampa-White River projects	Colorado-Wyoming.	300,000	55,526	87,522	86,367	70,585	Reconnaissance study for formulating development plans and appraising merits of each to determine whether undertaking of project investigations is warranted and to permit a selection of projects to use respective States' allotted share of Colorado River water.
Subtotal, reconnaissance		886,000	170,673	173,242	156,500	385,585	
Basin surveys:							
Region 3: Lower Colorado River Basin, general.	Arizona-California-Nevada-New Mexico-Utah.	983,000	542,057	45,000	40,000	355,943	Comprehensive water-supply studies, including studies of water resources, sedimentation, and storm studies of the lower Colorado River Basin are in progress to develop basic data needed for general planning and for a factual basis for examination of controversial issue arising from the Colorado River compact. Also examination of Bureau's need for withdrawn lands, and their releases from the withdrawal when no longer needed.
Subtotal, basin surveys		983,000	542,057	45,000	40,000	355,943	

Schedule of general investigations program, fiscal years 1955 and 1956, Colorado Basin—Continued

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations—Con.							
Project investigations:							
Region 3:							
Bridge Canyon project	Arizona	$1,210,000	$1,106,447	$45,000	$30,000	$28,553	Bridge Canyon project consists of a dam and powerplant at Bridge Canyon dam site on the Colorado River, transmission lines to load centers, and a silt retention dam at Coconino site on the Little Colorado River.
Dixie project	Utah	300,000	296,153	2,847	1,000		Project to supply supplemental water and water for new irrigation to an old area cramped for opportunities for growth. Some power development accompanies the irrigation development. Investigation to be completed in fiscal year 1955 except for stream gaging to be continued in fiscal year 1956.
Hassayampa and Snowflake projects	Arizona	248,875	245,875	3,000			Stream gaging only.
Holbrook project	Arizona	268,000	96,089	6,000	6,000	159,911	Sediment and quality of water investigation in fiscal year 1955, then regular irrigation project investigations leading to completion of report in fiscal year 1957.
Las Vegas pumping project	Nevada	211,000	54,098	47,832	66,000	43,070	Investigation to determine methods of delivering water from Lake Mead to the Las Vegas area, to supplement the present water supply obtained from an artesian basin underlying Las Vegas Valley.
Marble Canyon project	Arizona	893,000	721,185	45,000	75,000	51,815	One of the large Colorado River power developments needed to meet power demands of the Southwest.
Moapa Valley project	Nevada	288,000	286,204	1,796			Investigation of a small irrigation project in Nevada. Regional director's report completed fiscal year 1954. Amount programed is for minor revisions of the report.
Winslow project	Arizona	220,000	46,953	2,300	42,000	128,747	Stream gaging only in fiscal year 1955 followed in fiscal year 1956 by regular irrigation project investigation of potential 20,000-acre development.
Region 4:							

Region 4:							
Animas-La Plata project	Colorado-New Mexico.	725,000	283,979	17,000	100,000	324,021	Investigation in progress to evolve multiple-purpose plans for more efficient utilization of waters of Animas and La Plata Rivers and to provide data for use by Colorado and New Mexico in selecting projects for use of allotted Colorado River water.
Cliffs-Divide project	Colorado	900,000	418,863	6,000	2,000	473,137	Investigations of potential irrigation and multiple-purpose developments in the drainage of the Colorado River above Grand Junction to formulate development plans and appraise merits of each was essentially completed in fiscal year 1954. Such information is needed before final plans for important diversions to eastern slope areas can be made and before State of Colorado can make selection of projects to use its allotted share of Colorado River water and resolve difference between east and west slope interests. Detailed investigation of the most justified units, scheduled to begin in fiscal year 1957, will be preceded by 2 to 3 years stream-gaging program.
Colorado River storage project	Colorado-Wyoming-Utah-New Mexico-Arizona.	2,800,000	1,647,367	104,744	210,742	837,147	The Colorado River storage project includes a system of reservoirs in the upper Colorado River Basin above Lee Ferry to provide replacement water to downstream rights and thus permit additional upstream consumptive uses and simultaneously accomplish all other possible multiple-purpose uses including power generation, recreation, fish and wildlife conservation, and sediment retention. Reservoir storage must be provided for holdover surplus flows during periods of high runoff to supplement reduced river flows at Lee Ferry in low runoff periods to permit upper basin States to beneficially consume their share of Colorado River water as apportioned by the 1922 Santa Fe compact and to fulfill their obligations for downstream delivery to the lower basin as specified therein. Power revenues would provide aid in repaying cost of irrigation projects in the upper basin. An interim report seeking congressional authorization for the storage project plan and immediate construction of 5 initial units is completed. Continuing program provides for studies to perfect plans for these initial units and particularly Echo Park unit for continuation of investigations of other units not in the initial recommendation, and for studies of alternative and unappraised potentialities.

Schedule of general investigations program, fiscal years 1955 and 1956, Colorado Basin—Continued

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations—Con.							
Project investigations—Continued							
Region 4—Continued							
Dolores project	Colorado-Utah.	$490,000	$88,108	$70,000	$150,000	$181,892	Status report completed in fiscal year shows potential projects to serve large area of new and presently dry farmed land to be economically justified. Program for fiscal year 1955 would initiate detailed investigations for authorizing report to be completed in fiscal year 1958.
Blue South Platte project	Colorado						Transbasin diversion. See Missouri Basin.
Central Utah project	Utah						Transbasin diversion. See Great Basin.
Fruitland Mesa project	Colorado	160,000	31,860		50,000	78,140	Investigations to be initiated in fiscal year 1956 on potential project to provide new and supplemental irrigation water to important agricultural area in western Colorado.
Fryingpan-Arkansas project	do						Transbasin diversion. See Arkansas-White-Red Basin.
Gooseberry project	Utah						Transbasin diversion. See Great Basin.
Hammond project	New Mexico.	40,000	17,325	22,675			Program for fiscal year 1955 would complete detailed land classification on potential project to provide for irrigation of new lands. Feasibility of serving lands from main canal of Navaho project will also be appraised.
Navaho project	do	488,000	390,928	97,072			A coordinated investigation is in progress with Bureau of Indian Affairs to develop plans for serving 29,000 acres of land outside the Navaho Indian Reservation and 115,000 acres in the reservation. Early completion of authorizing report urged by State of New Mexico. Progress must be geared to Bureau of Indian Affairs program to provide needed agricultural opportunities for Navaho Indians. Close coordination also necessary with San Juan-Chama project investigation.
Ohio Creek project	Colorado	170,000	17,420		50,000	102,580	Investigations to be initiated in fiscal year 1956 on potential project to provide new and supplemental irrigation water to important beef-producing area in western Colorado.
Pine River project extension	Colorado-New Mexico.	137,000	78,843		58,157		This project would use surplus flow of Pine River and storage in Vallecito Reservoir to irrigate 15,100 acres of new land. In fiscal year 1956 money will be used to complete a detailed land classification of project lands.
San Juan-Chama project	Colorado-New						Transbasin diversion. See Rio Grande and Gulf

	New Mexico.						15,100 acres of new land. In fiscal year 1956 money will be used to complete a detailed land classification of project lands.
San Juan-Chama project	Colorado-New Mexico.						Transbasin diversion. See Rio Grande and Gulf Basin.
San Miguel project	Colorado	480,000	165,881	11,000		303,119	Reconnaissance report completed in fiscal year 1953 shows potential development to supply new and supplemental water to large area in San Miguel River Basin to have high benefit-cost ratio. Dam site drilling and construction material prospecting program to be undertaken in fiscal year 1955, preparatory to initiating detailed project investigations in fiscal year 1958.
Saucer Valley project	do	110,000	16,221	7,000		86,779	Reconnaissance report on San Miguel project completed in fiscal year 1953 shows separate development of Saucer Valley project to be highly desirable. Potential project would provide new and supplemental irrigation water to a small area with limited water resources. Detailed project investigations scheduled to start in fiscal year 1959 after period of stream gaging. Dam site drilling program to be undertaken in fiscal year 1955.
Savery-Pot Hook project	Colorado-Wyoming.	287,000	271,340	15,660			Authorizing report scheduled for completion in fiscal year 1955 on potential project to supply new and supplemental irrigation water to large area in Little Snake River Basin.
Seedskadee project	Wyoming	440,000	210,899	97,000	132,101		The purpose of the current investigation is to determine possibility of enlarging project presented in November 1950 report. The funds requested are to complete field surveys and engineering and economic studies.
Sublette project	Wyoming	207,000	200,605	6,395			Investigation in progress to appraise possibilities for utilizing regulated flows of Green River tributaries for irrigation and power. Status report scheduled for fiscal year 1955 will provide basis for determining future investigational program for overall project and various divisions. Contingent upon findings in Sublette status report investigation of potential project to develop surplus waters of New Fork drainage for irrigation and power would be resumed in fiscal year 1958.
Transmountain diversion project	Wyoming						Transbasin diversion. See Missouri Basin.
Subtotal, project investigations		11,072,875	6,692,643	608,321	973,000	2,798,911	
Total, engineering and economic investigation.		12,941,875	7,405,373	826,563	1,169,500	3,540,439	

Schedule of general investigations program, fiscal years 1955 and 1956, Colorado Basin—Continued

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations—Con.							
Advance planning:							
Region 4: Collbran project	Colorado	$474,000	$418,480	$15,520	$40,000		Project was authorized July 3, 1952, to provide for development and use of waters of tributaries of Plateau Creek, for irrigation, power, and municipal water for Grand Junction and other towns and rural communities. Definite plan report approved Nov. 24, 1952. The city of Grand Junction recently decided to withdraw from participation in the project and the present plan will therefore include only irrigation and power. Designs and specifications work and negotiations for repayment contracts to be carried on in fiscal year 1955.
Total, advance planning		474,000	418,480	15,520	40,000		
Investigations of existing projects:							
Region 4: Grand Valley project, Orchard Mesa division, rehabilitation survey	Colorado	32,000	13,786	18,214			Investigation to determine physical condition of existing project facilities and need, extent, and estimated cost of rehabilitating existing project works and improving the project water supply to be completed in fiscal year 1955.
Total, investigations of existing projects		32,000	13,786	18,214			
Total cost		13,447,875	7,837,639	860,297	1,209,500	$3,540,439	
Distributive costs: Transfers, credits, service facilities, unliquidated obligations, etc				−73,544			
Total obligations				786,753	1,209,500		
Method of financing:							
Allocation of appropriation				746,234			
Prior year balance available				40,410			
Contributions				109			
Allocation of appropriation requirements					1,209,500		

STATUS OF ALLOCATION OF COLORADO RIVER WATER

Mr. EVINS. Tell the committee what statutory authority you have to assist States for the use of their allocated share of the Colorado River water.

Mr. LARSON. In the upper Colorado River Basin, the Boulder Canyon Project Adjustment Act of 1940, which provides that annually $500,000 of the net revenues from the sale of power at Hoover Dam is to be used, in the first 3 years retroactive to 1938, for a comprehensive plan of the Colorado River—that is $1.5 million, and that investigation was concluded with our overall inventory of projects or comprehensive plan in the report of 1946.

The act further provides that annually the $500,000 be turned into the Treasury for reappropriation for use in the investigation and construction of projects in the upper basin, until the year of operation ending May 31, 1955, which includes the fiscal year 1954. Thereafter, until the year of operations ending May 31, 1987, the fund of $500,000 annually is to be used for the investigation and construction of projects in an equitable distribution between the States of the lower division and the States of the upper division on the Colorado system.

Mr. EVINS. I assume the States are appropriating annual sums of money to assist in the independent investigations of their own and that their work is somewhat coordinated with your own.

Mr. LARSON. Yes, sir; they work in very close cooperation with the Bureau of Reclamation. They appropriate money to the Geological Survey for stream gaging. They do some work themselves. Each of the States has an organization of its own—the Colorado Water Conservation Board in Colorado, the Utah Water and Power Board in Utah, the State engineer and planning board in Wyoming, and the State engineer and the Interstate Streams Commissioner in New Mexico. They cooperate together in developing the overall plans and independently in the investigation of individual projects.

Mr. EVINS. What is the extent of actual allotted Colorado River water that is presently available for irrigation and not used?

Mr. LARSON. As I mentioned previously the depletion in the upper Colorado Basin at Lee Ferry for all projects built today for both private and Government projects, Indian and Bureau of Reclamation projects, including authorized projects not finished yet, is estimated at 2½ million acre-feet, leaving about 5 million acre-feet unused.

STUDIES ON UPPER COLORADO RIVER BASIN

Mr. EVINS. Tell the committee what proposed studies are based on the unauthorized upper Colorado River project?

Mr. LARSON. There is a program of continuation of studies in the upper Colorado River Basin, on potential participating projects. These are divided into three categories. First, reconnaissance investigations to ascertain for our own offices and for the States, if a project is worth spending additional money for detailed project investigation. Then, if the reconnaissance investigation indicates that a potential project is worthwhile, then it is planned to go forward with the detailed project investigation, and those programs are worked out with conferences with State officials, too, so that our work is concen-

trated, first where the needs are the greatest and in harmony with the wishes of the States.

Mr. EVINS. How many studies are being made or are planned to be made on the unauthorized upper Colorado River projects?

Mr. LARSON. There are nearly 100 potential irrigation and power projects in the upper basin, many of which, of course, will not come forward with detailed investigations, leaving only a portion of that number.

Mr. EVINS. Which of these studies have been specifically requested by local people?

Mr. LARSON. I would say all that we have listed, and more too, for that matter.

AMOUNT OF WATER IN UPPER AND LOWER COLORADO RIVER BASIN

Mr. EVINS. Please clarify for the record just how many acre-feet of water in the lower Colorado River you have available at this time for irrigation purposes. Did you state earlier 2½ million acre-feet?

Mr. LARSON. I don't know whether I can speak for the lower basin. I think possibly Mr. Jones or Mr. Nielsen can, but the uses of the Colorado River in the lower basin, including the Gila, are something around 6 million acre-feet.

Mr. NIELSEN. We are getting into that Supreme Court suit. Arizona says there is still about a million and a half acre-feet of water unused in the lower basin to which she is entitled.

Mr. EVINS. Can you give us roughly for the record how many acre-feet of water you have available in the lower Colorado Basin? Is it 6 million, 5 million, 2½ million?

Mr. NIELSEN. The compact gives to the lower basin——

Mr. EVINS. We are not asking to which State but in the whole basin.

Mr. NIELSEN. Eight and a half million acre-feet plus some undetermined amount of surplus.

Mr. EVINS. How much of that is presently available for irrigation which is not being used?

Mr. NIELSEN. That comes back to the first answer I gave you, I think, that Arizona's contention is that there is a million and a half of that not being used. California might agree that it is not being used, but it claims that million and a half acre-feet under its contracts.

Mr. EVINS. When these studies and investigation are completed in the upper Colorado River Basin, how many acre-feet, if the projected plans materialize, will there be?

Mr. NIELSEN. It assumes that the upper basin will deplete the stream by its full 7½ million acre-feet.

Presently unused there would be in the neighborhood of 4½ million acre-feet that the upper basin is not using, plus a million and a half acre-feet that Arizona says is not being used.

The upper basin is obligated to deliver to the lower basin at Lee Ferry 75 million acre-feet in each 10 consecutive years, and as well, the lower basin is given the right to increase its uses by 1 million acre-feet per annum, which gives rise to the 8½ million acre-feet figure.

Mr. JENSEN. What is the part allotted to Mexico?

Mr. NIELSEN. A million and a half acre-feet except in drought conditions.

STUDIES PROPOSED IN UPPER COLORADO RIVER BASIN

Mr. EVINS. You stated that practically 100 studies are to be made in the upper region?

Mr. LARSON. I said there were 100 potential projects, but there wouldn't be enough water for them and a large number of them will be dropped.

Mr. EVINS. I asked how many proposed studies?

Mr. LARSON. There have been detailed studies on the 11 participating projects.

Mr. EVINS. Detailed studies on 11. How many additional studies are proposed?

Mr. LARSON. We have the studies listed in this submission, but the depletion is still far short of the 7½ million acre-feet. In other words, the 11 participating projects require an additional depletion of only about 400,000 acre-feet.

Mr. EVINS. How many studies are proposed to be made with funds requested in this budget? Is it 100? Is it 50?

Mr. LARSON. No, it is very few, eight project investigations.

Mr. EVINS. I believe you testified earlier there were 100 requests.

Mr. LARSON. No sir, we haven't had 100 requests. I mentioned there are 100 potential projects that we included in the report in a reconnaissance manner, but many of that large number have been dropped, of course, and now we are down to the point of asking for investigation funds for a comparatively few projects. I will count them in just a moment.

There are eight.

STUDIES REQUESTED BY LOCAL INTERESTS

Mr. EVINS. Eight studies have been requested and you testified earlier that all of these had been requested by local interests.

The language as carried in the appropriations bill, almost annually, states:

> None of this appropriation shall be used for more than one-half of the cost of an investigation requested by states, municipalities, or other interests.

Mr. LARSON. When I said, "requested by," may I explain, Mr. Chairman, that when I mentioned "requested by the States," I meant that in our close cooperation with the States, we asked them to consult with us on the needs of the State regarding the spending of this special fund of $500,000 annually from the net revenues of the Hoover Dam, that is made available to the upper basin during the period of years I mentioned.

Mr. EVINS. In other words, the Bureau is initiating them and the if they suggest to the States their cooperation, the States then in turn say, "Yes, we are interested, we will cooperate," but they are not really initiated by the States?

Is that correct?

Mr. LARSON. Yes, in a formal manner, that is correct.

The understanding always has been that this special fund of $500,000 from the Boulder Canyon is available for investigations and construction of projects in the upper basin under direction of the Secretary of Interior. The States understand that and we have understood that and naturally have consulted the States in an effort to cooperate with

them in a program that will be to the best interests of both the States and Government.

Mr. EVINS. You don't feel, then, that you are circumventing the provision in the language of the appropriations bill?

Mr. LARSON. No, sir.

Mr. EVINS. Are the States paying their one-half cost for these studies and investigation?

Mr. LARSON. Well, they are spending a lot of money along with us in their own studies and in other investigations have advanced considerable money.

Mr. EVINS. You don't have that amount for the past 2 years?

Mr. LARSON. No, I do not.

Mr. EVINS. Could you supply roughly in round figures the amount of money that the States in the area have expended for studies and investigations for the past 2 years? Do you think you could secure that?

Mr. LARSON. No, sir; it would have to be requested from the States. They have quite an appropriation each year for their State offices, but I do not know what it is.

Mr. EVINS. Could you say you are cooperating very closely with them?

Mr. LARSON. Yes, sir; we cooperate with their engineers but I don't keep track of how much money they spend.

Mr. EVINS. Is this all a give proposition, and not a take?

Mr. NIELSEN. No, sir. Perhaps I can help with that. The Boulder Project Act more or less directed the Secretary to conduct investigations toward a comprehensive plan for the Colorado River and made funds available to us for that purpose.

We have been going along and in our routine fashion we come to a project. We consult with the States in the development of our program for those investigations, you see. We don't take them out of routine except by reason of any formal request which they make. We just work with them.

Mr. EVINS. The Congress has established the policy that no more than half of this money should be appropriated.

Mr. NIELSEN. That is another story. When a State comes and asks for a specific investigation for a community or for an irrigation district, our first response to them must be—one of the conditions is that they must provide 50 percent of the funds.

The central Arizona project was one. The San Diego aqueduct was another, within my own experience.

Mr. EVINS. If they don't initiate the study they don't have to pay one-half. If the Bureau of Reclamation initiates it the States don't have to pay, so therefore as a matter of practicality, the States don't initiate studies. In practice isn't that about the way it works?

Mr. NIELSEN. Off the record there may be some fumbling for the check there.

Mr. EVINS. Put it on the record. State it again.

Mr. NIELSEN. Well, I wish I hadn't said it, now.

Mr. EVINS. That is the point we are trying to determine. The States are not initiating these studies because they know they have to pay for one-half of them.

Mr. NIELSEN. No, I didn't say quite that. I say if we come to an investigation in our routine program, there is no requirement, as we understand it, for them to advance half the funds. If they make a

formal request for an investigation of a project, and we take it out of routine, for that reason, we ask them.

Mr. EVINS. Administratively your Department has ruled that it is not a request unless it is a formal request. Now how many formal requests have been filed within the last 2 years? For studies?

Mr. NIELSEN. We can supply that for the record.

Mr. EVINS. You are asking for funds for eight studies in the upper Colorado River Basin next year. Were any of those formal requests?

Mr. LARSON. No, sir; not the eight that I mentioned.

LOCAL CONTRIBUTIONS FOR INVESTIGATIONS

Mr. EVINS. I will ask you to please supply for the record a report on all basins under authority of this section of the subcommittee, by basins, project funds accepted from local interests in compliance with the aforementioned appropriation language.

(The information requested follows:)

CONTRIBUTIONS BY LOCAL INTERESTS FOR INVESTIGATIONS

Under the proviso in the annual appropriation acts requiring that States, municipalities, and other local agencies advance at least one-half of the cost of an investigation undertaken at their request, the following contributions have been received in connection with investigations underway during the period from June 30, 1953, to the present:

	Total contributions to date
1. Central and Southern Pacific:	
Reconnaissance: Calleguas Creek Basin, Calif. Calleguas Municipal Water District	$30,000
Basin surveys: Santa Ynez River Basin, Calif.,[1] Santa Barbara County Water Agency	20,000
Project investigations:	
Cachuma project extensions, California, Santa Barbara County Water Agency	25,000
Ventura River project, California, Ventura River Municipal Water District	58,500
Advance planning: Ventura River project, California, Ventura River Municipal Water District	212,478
2. Columbia Basin: Reconnaissance: Spokane Valley project, Washington, Spokane River Canal Co	5,000
3. Great Basin: Project investigations: Strawberry Valley project, Utah, Strawberry Waters Users Association	500
4. Rio Grande and Gulf Basin: Project investigations: Lower Rio Grande rehabilitation project, Texas, El Jardin, Harlingen, and Mercedes Irrigation Districts	39,800
Total	391,278

[1] Some preliminary work had been completed on the Santa Ynez Basin Survey prior to execution of cooperative contract. Santa Barbara County Water Agency to contribute one-half of cost of completing this survey.

In addition, the following contributions have been made by States, municipalities or other local agencies to assist with or expedite investigations active during the same period but which were not made under the above proviso:

1. Central and South Pacific Basin: Project investigations: Butte Valley project, California, Butte Valley local interests	$15,000
2. Great Basin:	
Project investigations: Central Utah project, Utah, State of Utah	75,655
Investigations of existing projects: Humboldt project, Nevada, Pershing County Water Conservation District	500
3. North Pacific Basin: Basin surveys: Umpqua River Basin, Oreg.:	
State of Oregon	5,000
Douglas County, Oreg	5,000
Total	101,155

Mr. JENSEN. Mr. Chairman, I might say on the record, you are touching on a thing that was for years a bugaboo, and finally it brought the action of the Secretary of the Interior to the point where he asked Congress to give him the authority for a finding of feasibility in the authorization of a project, thus circumventing Congress. I don't mind telling you that I don't know any Member of Congress who enjoyed that privilege. We thought these projects should be authorized by the Congress. We finally let the Department know that we would not be anxious to appropriate money to start construction on any project that had been authorized by a finding of feasibility by the Secretary of Interior. That is why some of those projects that were authorized by a finding of feasibility by the Secretary of Interior, are now being considered by the legislative committee which has those things in hand.

Mr. EVINS. It may be necessary for this committee and the Congress to do the job to get the job done. This work is important to the well-being of the country and I am not hostile or opposed to the principle of the project but the thing that interests me is that the Congress sets the policy and then we find that it is not being complied with, but that a ruling of feasibility is written in the Department and it is to all intents and purposes circumvented, and of no effect. Let's take it out of the appropriation act, or have it complied with.

DULCE PROJECT

What is the status of the Dulce project for which you are requesting funds? What is the nature of it?

Mr. LARSON. That is a potential irrigation project in Colorado and New Mexico, and the reason that we are requesting funds for a reconnaissance investigation is to evaluate the potential irrigation development as an independent project, or whether it should tie in with the San Juan-Chama project that has been considered for conditional authorization in S. 500, that just passed the Senate. If the San Juan-Chama project goes on to a detailed investigation, we feel there should be a reconnaissance study made on this Dulce project.

Mr. EVINS. I note on page BR–11, on the Colorado River storage project that the Bureau states—

Power revenues would provide aid in repaying cost of irrigation project in the upper basin.

I have understood that the stated policy on hydropower development is to build power facilities only where it is incidental to flood control or irrigation.

From your statement it would appear that the opposite is true, that you really must have the power to have the irrigation. Isn't this an example of where the Bureau of Reclamation is planning power to pay for irrigation?

Mr. LARSON. This is an example of a multiple-use project where the uses of water for irrigation, power, municipal, and industrial purposes cannot be separated if the best development is to go forward. The stream must be regulated for irrigation and at the same time, large quantities of power can be produced, so that the power revenues can be used to pay out the power allocation and can be used as an aid to irrigation on the repayment of irrigation costs in excess of the repayment ability of the irrigation water users.

Mr. EVINS. Then, public power produced on the project will in fact provide aid in repaying cost of the irrigation project in the upper basin?

Mr. LARSON. Yes, sir.

Mr. EVINS. Would you state that it is necessary or essential to have these revenues to make the project successful?

Mr. LARSON. Yes, sir. There can be no basinwide development, if it is to be entirely repaid to the Treasury, without that combination.

FRUITLAND MESA, AND OHIO CREEK PROJECTS

Mr. EVINS. What is the nature of the Fruitland Mesa, and Ohio Creek projects for which you are requesting initial study funds?

Mr. LARSON. The Fruitland Mesa project is located near Crawford, in Gunnison County, Colo., and is in critical need of a supplemental irrigation supply to what is now an important agricultural area. We have felt that that project should go forward to a detailed project report.

Mr. EVINS. What about the Ohio Creek project?

Mr. LARSON. The Ohio Creek is similar. It is in the same general area and is a small project to meet the critical need for supplemental irrigation water to the agricultural area that is already established there.

Mr. EVINS. Is there sufficient unallocated water to take care of these two projects?

Mr. LARSON. Yes, sir.

COLLBRAN PROJECT

Mr. EVINS. What has been the effect of the withdrawal of the city of Grand Junction from the Collbran project?

Mr. LARSON. We have left it to the city of Grand Junction to determine in its own way just what it wanted to do, for a municipal water supply, and the city finally decided that it would go to Kannah Creek instead of participating in the Collbran project.

The present irrigated area in the Plateau Valley is badly in need of supplemental water supply. It is in a very rich cattle country, and we have asked for $40,000 in the submission to revise our present definite plan report to include only the agricultural area, by developing irrigation and power.

Mr. EVINS. Briefly, why did the city withdraw?

Mr. LARSON. I think largely because the rapidly growing community is now a uranium center and needs water very quickly. In view of that, I think the city officials thought they could get a smaller amount of water soon and go ahead on their own which is, of course, satisfactory to us.

Mr. EVINS. How about the economic feasibility of the project now that they have withdrawn?

Mr. LARSON. The economic feasibility of the smaller project is just as good as it was with the larger one, as far as the benefit-cost ratio and the repayment ability of the water users is concerned.

Mr. EVINS. I don't see quite how you figure that. Is it because the city has grown or the suburbs have grown?

In other words, you had a good benefit-cost ratio project, with the city in. Now, the city has withdrawn and you say the situation is just as good?

Mr. LARSON. Yes, sir; it cost a considerable amount of money to include the city with the steel pipelines and all, to bring the water down from high elevations and that cost would be eliminated so it leaves the irrigated part of the project just about where it was as to feasibility.

Mr. EVINS. As a matter of fact, power will have to carry a large part of the load there.

Mr. LARSON. That is correct.

CONSTRUCTION AND REHABILITATION, BUREAU OF RECLAMATION

GILA PROJECT, ARIZONA

Mr. EVINS. Under "Construction," Mr. Reporter, insert pages 77 through 80 in the record.

(Pages BR–77 through BR–80 of the justifications follow:)

GILA PROJECT, ARIZONA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$54,822,979
Total obligations to June 30, 1954	44,270,806
Allotment, fiscal year 1955	4,273,200
Prior year balance available	576,136
Balance available in subsequent year	−443,993
Total obligations, fiscal year 1955	4,405,343
Allotment, fiscal year 1956	3,500,000
Prior year balance available	443,993
Total obligations, fiscal year 1956	3,943,993
Balance to complete	2,202,837

WORK PROPOSED, FISCAL YEAR 1956

Project common features

Completed facilities.—Includes diversion works and a section of the main canal completed in prior years.

Drains ($30,000).—North Gila drains Nos. 1, 2, and 3, along the gravity main canal, are complete except drain No. 2. Funds requested are required to extend drain No. 2 from the Redondo gravel pit to the Gila River. The extension will permit draining the gravel pit, the temporary terminus of drain No. 2, and alleviation of high ground water table problem in the area.

Yuma Mesa division

Completed facilities.— Includes a section of the main canal, the A and B canals and laterals and Yuma housing completed in prior years. These facilities are now in use.

Yuma Mesa pumping station.— By end of fiscal year 1955 installation of facilities to permit complete control of the plant from the Gila substation will have been completed.

North Gila Valley laterals.— Connection to and service from the gravity main canal to the North Gila Valley Irrigation District was made effective on January 1, 1955, to complete all work on these laterals.

Drains— Yuma Mesa division area ($10,000).— Funds requested are required for continuation of the program of observing ground water conditions in the north and south Gila Valleys and on the Yuma Mesa. Continuation of observations and maintenance of records of ground water elevations are necessary to anticipate development high ground water conditions in the irrigated areas in sufficient time to permit corrective measures.

Drains— Yuma Mesa unit facilities.— This feature was established in fiscal year 1955 to meet an emergency high ground water condition on the Yuma Mesa. Methods developed in alleviating the high ground water condition on a 340-acre area in section 28, T. 9 S., T. 23 W. will permit determination of type of treatment required to maintain ground water elevation at safe levels on the Yuma Mesa. No funds are requested for fiscal year 1956.

Wellton-Mohawk division

Completed facilities.— Includes the Mesa and Valley development farms, water users' building and purchased facilities from Mohawk Municipal Water Conservation District and Gila Valley Power District. All facilities are now in use.

Pumping plant Nos. 1, 2 and 3.— By end of fiscal year 1955 all pumps, motors, and miscellaneous equipment will be installed and the plants will be completed to ultimate capacity.

Wellton-Mohawk Canal ($40,000).— Construction of the main supply canal for the division is complete; however, soon after it was placed in operation there was considerable displacement of the concrete lining as a result of action of expansive clays. Temporary lining repair was made in fiscal year 1953 pending complete expansion of clays. Funds requested are required for final lining repair on those sections of the canal where the action of expansive clays has ceased.

Mowhawk Canal ($59,439).—Construction of the canal is complete with exception of two additional road crossing structures which have been requested by the Wellton-Mohawk Irrigation and Drainage District. Soon after it was placed in operation there was extensive displacement of the concrete lining by action of expansive clays. Temporary lining repair was made in fiscal year 1953 pending complete expansion of clays. Funds requested in fiscal year 1956 are required for construction of two timber bridges and final repair of those sections of the canal where expansive clays have completed their expansion. The final lining repair will be completed in fiscal year 1957.

Wellton Canal ($40,000).— Construction of the canal serving the Wellton area is complete; however, soon after it was placed in operation there was considerable displacement of concrete lining due to action of expansive clays. Temporary repair of the damaged lining was made in fiscal year 1953 pending completion of action by the expansive clays. Funds requested are for final repair of the damaged lining on these sections of the canal where the clays stopped expanding.

Mohawk unit-laterals ($1,920,208).—Construction will be completed on Mohawk lateral unit No. 4 which was placed under contract in December 1954. Construction will also be completed on the Mowhawk laterals in the Ralph's Mill area (previously designated Ralph's Mill unit laterals) under a contract to be awarded late in fiscal year 1955. Supporting activities, will be continued including payments on contracts supplying minor relift pumping units in the Ralph's Mill area.

Wellton unit-laterals.— The Wellton lateral system will be complete and in operation by the end of fiscal year 1955.

Dome unit-laterals.— All laterals in the Dome area will be complete and in operation by the end of fiscal year 1955.

Texas Hill unit-laterals ($1,783,834).—Construction will be continued on the Texas Hill laterals under a contract to be awarded late in fiscal year 1955. The funds will be needed to complete payment on contract earnings on the construction contract and for supporting activities including payments on contracts for supplying relift pump equipment for the main supply laterals. Construction of the unit will be completed in fiscal year 1957.

Wellton-Mohawk Canal unit-laterals.—All Wellton-Mohawk Canal laterals will be complete and in operation by the end of fiscal year 1955.

Drains, Wellton-Mohawk area ($40,000).—The program of ground-water observations and maintenance of a continuing record of ground-water elevations will be continued as a means of advance determination of potential problem areas that may need installation of drainage works. Funds requested will be required for above studies and for preparation of specifications for construction of the first section of the Wellton-Mohawk main drain adjacent to the Gila River channel.

Wellton-Mohawk transmission lines and substations ($125,642).—Service lines to the relift pumps in the Dome area will be completed by the end of fiscal year 1955. Funds requested will be required for reconducting the main transmission line to the Texas Hill area to provide capacity for relift pumps along the Mohawk Canal and in the Texas Hill lateral unit.

Wellton housing and facilities and miscellaneous general property ($85,000).— The Wellton Government Camp is complete and has been in service several years. By the end of fiscal year 1955 the Wellton-Mohawk Irrigation and Drainage

District will have been supplied various units of operation and maintenance equipment necessary in connection with the care and operation of irrigation blocks Nos. 1 and 2 which they assumed on January 1, 1955. Funds requested will be required to purchase additional operation and maintenance equipment which will become necessary as the district assumes care and operation of additional irrigation blocks. The equipment will be transferred to the district under terms of the act of July 29, 1954 (68 Stat. 580).

Mr. EVINS. The Bureau is requesting $3,500,000 for this project.

Please give us the status of the repayment contract with the Yuma Mesa Irrigation District.

Mr. NIELSEN. May Mr. Dominy give you that statement, please?

Mr. DOMINY. The Yuma Mesa Irrigation District is in a public land area. The district was formed several years ago and we have been attempting to negotiate a repayment contract with that district.

There are certain complications in this area that require us to bring the contract to the Congress, pursuant to authority of section 7-B, of the Reclamation Project Act of 1939. It looked as though we would not have that document fully negotiated and through the election requirement in order to get it to this session of Congress so the Arizona delegation has introduced the bill in advance. We would be authorized by Congress to execute a contract along certain lines, if the Congress should enact the legislation pending now.

Mr. EVINS. Have you any money in the budget for this project?

Mr. DOMINY. Regional Director Jones can testify on the construction elements of the project.

Mr. JONES. We have an obligation program for the year of $3,943,993.

This will include completion of the lateral irrigation system, subdrainage work and installation——

Mr. EVINS. We have that, Mr. Jones. My question was about the status of the requested funds for the Yuma Mesa Irrigation District.

Mr. JONES. That is a part of the Gila project.

Mr. EVINS. Is there any money for this?

Mr. JONES. A small amount.

Mr. EVINS. How much?

Mr. DOMINY. Mr. Chairman, there is only $10,000 in the 1956 estimate for the Yuma Mesa division of the Gila project.

YUMA AUXILIARY PROJECT

Mr. EVINS. Mr. Reporter, insert page 89 in the record.

(Page BR–89 of the justification follows:)

YUMA AUXILIARY PROJECT, ARIZONA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$1,160,339
Total obligations to June 30, 1954		652,339
Allotment, fiscal year 1955	$100,000	
Total obligations, fiscal year 1955		100,000
Allotment, fiscal year 1956	408,000	
Total obligations, fiscal year 1956		408,000
Balance to complete		

Work proposed, fiscal year 1956

Completed facilities.—Work completed in prior years.

Connection to Gila project.—Work performed by Gila project in fiscal year 1953, to be refunded to Gila in fiscal year 1955.

B-Main Canal ($238,164).—Installation of concrete check and lateral turnout structures with screw lift gates and concrete lining of the existing canal from the previously constructed connection to the Gila project will be accomplished by contract work performed under specifications prepared during the previous year.

Unit-B laterals ($169,558).—Existing laterals will be modified where necessary to permit adequate irrigation service to presently developed land and new concrete pipe laterals will be constructed to serve lands, the development of which has not been possible due to inadequacies of the original distribution system. The work will be accomplished by contract under the same specifications as the canal work.

Mr. EVINS. The Bureau requests $406,000 for the Yuma auxiliary project. What is the status of repayment contracts for industrial water rights?

Mr. DOMINY. We have a repayment contract with the Yuma auxiliary project, to repay the full cost of service through the Gila project facilities.

Mr. EVINS. Does this include a contract for industrial water rights or are those yet to be obtained?

Mr. DOMINY. I don't understand the reference to industrial water.

Mr. EVINS. On page 86 of your justification it says some of these contracts are still future contracts.

You speak of existing contracts and future contracts.

Mr. JONES. I believe those cover special sales contracts of water beyond the project use.

Mr. EVINS. How many industrial water contracts do you have, do you know?

Mr. JONES. I don't know. I would have to supply that.

Mr. EVINS. Please supply that for the record, and also, if you can, how many future contracts you expect to obtain for this project.

(The information requested follows:)

The reference on page 86 of the justifications should have been to individual water-right contracts rather than industrial water-right contracts. As of December 31, 1954, individual water-right contracts totaling $505,485 were in force. A total of $489,231 had been paid on these contracts. The estimate of $625,435 for the total expected face value of individual water-right contracts appears to be reasonable in terms of individual contract operations to date on the Yuma auxiliary project.

Mr. EVINS. You speak of "existing" and "future" and you don't know the number of either one.

It is indicated in the justification that $625,000 is to be returned from these water-rights contracts.

PALO VERDE PROJECT

Concerning the Palo Verde project, insert page 94 in the record.

(P. BR–94 of the justifications follows:)

PALO VERDE PROJECT, ARIZONA-CALIFORNIA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$6, 909, 000
Allotment, fiscal year 1956	$1, 985, 000	
Total obligations, fiscal year 1956		1, 985, 000
Balance to complete		4, 924, 000

Work proposed, fiscal year 1956

Diversion dam ($1,095,500).—Award of contract for construction is proposed during October 1955 and funds will be required for progress earnings during the remainder of the fiscal year.

Drains ($230,000).—Award of contract for construction is proposed during October 1955 and funds will be required for progress earnings during the remainder of the fiscal year. This schedule coordinates completion of drains with functional completion of the diversion dam.

Levees ($229,000).—Award of contract for construction is proposed during October 1955 and funds will be required for progress earnings during the remainder of the fiscal year. This schedule coordinates completion of levees with functional completion of the diversion dam.

Mr. EVINS. The Bureau requests $1,985,000 on this project.

Please give us a brief statement of what is contemplated to be accomplished, and the status of the repayment contract.

Mr. JONES. The Palo Verde project was authorized by Public Law 752, 83d Congress, approved August 31, 1954. It is located along the Colorado River 58 miles below Parker Dam, in the States of Arizona and California.

The project consists of the Palo Verde diversion dam, a rock- and earth-filled structure on the river; about 30 miles of levee along the river above the dam, and a drainage canal for some of the upstream lands on the Arizona side.

The levees and canal are for protection of Indian lands.

Advance planning work is being done in fiscal 1955, with carryover construction funds from the Colorado River front work and levee system. The obligation fund program for fiscal year 1956 is $1,985,000, to start construction of the dam, levees, and drains, and to make a $500,000 loan to water users as authorized in Public Law 752.

A repayment contract is being negotiated.

Mr. EVINS. Mr. Jones, how many contracts do you have? How many water contracts do you have for this project?

Mr. JONES. There is one in the process of negotiation.

Mr. EVINS. How much is to be repaid through this one contract?

Mr. JONES. $1,175,000, plus the $500,000 loan.

Mr. EVINS. Over what period of time?

Mr. JONES. Over 50 years.

PARKER-DAVIS PROJECT

Mr. EVINS. Concerning the Parker-Davis project, the reporter will insert pages 101, 102, and 103.

(The pages, BR–101, BR–102, and BR–103, of the justifications follow:)

PARKER-DAVIS PROJECT, ARIZONA-CALIFORNIA-NEVADA—DAVIS DAM ONLY

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$116,042,137
Total obligations to June 30, 1954		112,288,171
Allotment available, fiscal year 1955	$1,453,580	
Prior year balance available	118,558	
Total obligations, fiscal year 1955		1,572,138
Allotment, fiscal year 1956	$1,390,000	
Total obligation, fiscal year 1956		1,390,000
Balance to complete		792,000

Work proposed for fiscal year 1956

Davis Dam, powerplant, terminal facilities and Davis-Kingman and Needles tap 69-kilovolt lines.—These features completed in fiscal year 1955 or prior years.

Davis-Mesa-Coolidge 230-kilovolt lines ($41,550).—These funds are needed to complete the procurement and the installation of 12.5 kilovolt equipment, supervisory control, and telemetering equipment, and for payment of right-of-way claims and preparation of records, reports, and "as-built" drawings.

Davis-Hoover interconnection ($1,500).—These funds are needed for payment of right-of-way claims and preparation of records, reports, and "as-built" drawings.

Davis-Parker 230-kilovolt line.—Feature completed and in service.

Parker 230-kilovolt switchyard ($5,000).—These funds are needed for preparation of records, reports, and as-built drawings.

Second Parker-Gila 161-kilovolt line ($8,500).—These funds are needed for payment of right-of-way claims and preparation of records, reports, and as-built drawings.

Second Parker-Phoenix 161-kilovolt line ($3,000).—These funds are needed for preparation of records, reports, and as-built drawings.

Phoenix substation additions ($18,000).—These funds are needed to complete the installation of supervisory-control equipment and for preparation of records, reports, and as-built drawings.

Second Phoenix-Tucson and Coolidge-ED5 crosstie 115-kilovolt line ($18,000).—These funds are needed to complete the installation of telemetering and supervisory-control equipment, for payment of right-of-way claims, and for preparation of records, reports, and as-built drawings.

Tucson-Cochise 115-kilovolt line ($6,000).—These funds are needed for payment of right-of-way claims and for preparation of records, reports, and as-built drawings.

Yuma 34.5 kilovolts improvements and extensions ($211,000).—These funds are needed to complete installation of the first transformer bank and associated equipment to convert the Gila substation for 69-kilovolt service, and for preparation of records, reports, and as-built drawings. The second transformer bank at Gila substation is programed under "Substation additions (APA wheeling contract)."

Power supply to Wellton-Mohawk Division—Gila project ($378,000).—These funds are needed to convert the Gila-Wellton-Mohawk line and the Wellton-Mohawk No. 2 pumping plant substation to 161 kilovolts, and to prepare records, reports, and "as-built" drawings. This amount includes $220,000 representing the nonappropriation transfer of equipment now at Gila substation (purchased by the Parker Dam power project) to the Wellton-Mohawk substation, and so does not require financing.

Project carrier-current system ($2,000).—These funds are needed to complete the installation of supervisory control and telemetering equipment, and to prepare records, reports and "as-built" drawings.

Substation additions (APA wheeling contract) ($756,600).—Includes:

Facilities to be constructed for wheeling APA power, original contract ($318,600): These funds are needed to complete designs, procure equipment, and initiate installation of equipment for the Cochise substation additions; begin design work for the Prescott substation additions; complete payment on, and installation of, supervisory control and telemetering equipment; and prepare records, reports, and "as-built" drawings.

Facilities to be constructed for wheeling APA power, supplemental contract ($438,000): These funds are needed to design and construct the Marana tap; complete the Nogales tap; complete installation of the second transformer bank and associated equipment at Gila substation; complete installation of supervisory control, telemetering, and minor equipment; and prepare records, reports, and "as-built" drawings.

General plant, transmission system ($177,000).—These funds are needed to complete the microwave communication system.

System operation and maintenance area.—Completed fiscal year 1955.

Construction cost audit and reclassification.—Completed fiscal year 1955.

Surplus construction property disposal.—Completed fiscal year 1955.

Mr. EVINS. The Bureau requests $1,390,000 for this project.

The justification indicates that public power revenues are used largely to repay the full cost of the reimbursable features of this project, including irrigation.

Is this correct?

Mr. JONES. That is correct.

Mr. EVINS. What is the need for the Marana tap for which you are requesting construction funds?

Mr. JONES. That is part of the construction in connection with the power wheeling arrangement we have with the Arizona Power Authority.

BOULDER CANYON PROJECT

Mr. EVINS. The Bureau requests $200,000 for the Boulder Canyon project.

Mr. Reporter, insert pages 110 and 111.

(Pp. BR–110 and BR–111 of the justifications follow:)

BOULDER CANYON PROJECT, HOOVER DAM AND POWERPLANT, ARIZONA-NEVADA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$164, 767, 000
Total obligations to June 30, 1954		158, 803, 771
Allotment, fiscal year 1955	$984, 000	
Prior year balance available	192, 000	
Balance available in subsequent year	−916, 000	
Total obligations, fiscal year 1955		260, 000
Allotment, fiscal year 1956	$200, 000	
Prior year balance available	916, 000	
Total obligations, fiscal year 1956		1, 116, 000
Balance to complete		4, 587, 229

Work proposed, fiscal year 1956

Hoover Dam and Reservoir.—This feature completed in prior years and now in operation.

Hoover powerplant ($996,000).—This amount will be necessary for preparation of specifications, invitations to bid, award of contracts, and progress payments for furnishing and installing equipment for unit N8 in Hoover powerplant, and for progress payments on generator, turbine and butterfly valve to be awarded in fiscal year 1955.

Hoover switchyard ($130,000).—This amount will be required for preparation of specifications, invitations to bid, award of contracts, and progress payments for furnishing materials for 22,000-kilovolt-amperes transformer bank for 69-kilovolt service.

General property (dam and reservoir) ($140,000).—This amount will be required for preparation of specifications, invitations to bid, award of contract, and progress payments for construction of a sewage treatment plant for Hoover Dam, for improvements at No. 2 warehouse, alterations to communications equipment and the purchase of minor items of project equipment.

General property (investment retained by Boulder Canyon project).—Feature completed and in service.

General property (Boulder City investment transferred to Boulder City municipal project).—Feature completed and in service.

Mr. EVINS. When does the Bureau plan to award the contract mentioned in the justifications?

Mr. JONES. Not until the State of Nevada and the city of Los Angeles formally request that the unit be installed. I don't know when that will be. They expect to make that request this summer. We will then advertise and award the contract.

Mr. EVINS. The Bureau estimates you will have over $1 million unobligated at the end of the present fiscal year.

What specific assurances can you give the committee that the Bureau will be able to expend this amount and the requested funds in fiscal year 1956?

Mr. JONES. No absolute assurances, except that we have indications from the State and city that they plan to make the request this summer for purchase and installation of the unit.

Mr. EVINS. In other words, you have $1 million unobligated funds and you request $200,000. You are assuring the committee that you will spend or use all these funds during 1956.

Mr. JONES. If we get the request.

Mr. EVINS. If you don't you will have $1,200,000 in unobligated funds at this time next year?

Mr. JONES. Not quite all of it, no, sir. There are some minor items, too.

Mr. JENSEN. The All-American Canal is completed. Has it been turned over to the water users of the district?

Mr. NIELSEN. Yes, sir.

Mr. JENSEN. Thank you.

BOULDER CITY MUNICIPAL OFFICE, NEVADA, AND EDEN PROJECT

Mr. EVINS. Mr. reporter, please insert pages 116 and 117 and also insert pages 275 and 276.

(Pages BR–116, BR–117, BR–275, and BR–276 of the justifications follow:)

BOULDER CANYON PROJECT—BOULDER CITY MUNICIPAL OFFICE, NEVADA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$171,700
Total obligations to June 30, 1954		71,700
Allotment, fiscal year 1955	$30,000	
Total obligations, fiscal year 1955		30,000
Allotment, fiscal year 1956	$50,000	
Total obligations, fiscal year 1956		50,000
Balance to complete		20,000

Work proposed, fiscal year 1956

Water plant.—Installation of extensions deferred.

Electric plant.—Service to new areas deferred.

Streets, sidewalks and parks.—Completed in prior years.

Sewer system, plant ($50,000).—Sanitary conditions require that work be done at the disposal plant to eliminate objectionable odors. This is the estimated cost of a trickling filter to be added to the sewage disposal plant and making a limited number of connections for new residences. In the early days, the residential areas were far enough away so that the odors from the system were diffused before reaching the edge of town. The town has now grown to the point where further development in the direction of the disposal plant cannot be allowed until the plant is modernized to meet health standards imposed by State authorities.

Municipal buildings.—Transfer of the library deferred.

Purchase of equipment.—Required equipment acquired in prior years.

EDEN PROJECT, WYOMING

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$7,368,125
Total obligations to June 30, 1954		4,296,582
Allotment, fiscal year 1955	$700,000	
Prior year balance available	104,731	
Total obligations, fiscal year 1955		804,731
Allotment, fiscal year 1956	$800,000	
Total obligations, fiscal year 1956		800,000
Balance to complete		1,466,812

Work proposed, fiscal year 1956

Big Sandy Dam and Reservoir.—Feature completed.

Little Sandy diversion dam ($10,933).—The collection of design data and preparation of designs and specifications will be completed. Specifications will be issued for award of construction contract early in fiscal year 1957. This feature will be necessary to utilize Little Sandy Creek water as new lands are developed.

Means Canal.—Feature completed.

Little Sandy Canal ($10,683).—To be awarded on same contract as Little Sandy diversion dam and is part of same water carriage system.

Eden Canal rehabilitation and enlargement ($15,963).—Construction work will be completed in fiscal year 1955. Funds are requested for final report and testing and seasoning canal.

Farson area laterals ($128,321).—The preparation of designs and specifications, issuance of specifications and acquisition of necessary land and rights are scheduled in fiscal year 1956, with award of construction contract early in fiscal year 1957. Construction is scheduled to allow for orderly transition from the existing lateral system to the rehabilitated and extended lateral system.

Eden area laterals ($376,500).—Construction on the second section of Eden area laterals is scheduled through fiscal year 1956. Funds requested will be needed for contract payments and supporting activities.

West Side laterals ($172,000).—Payments under the prime contract awarded in fiscal year 1955 will continue to completion through the first half of fiscal year 1956. Completion as scheduled will allow orderly development of farm units by the Department of Agriculture.

Farson area drains ($92,630).—Funds requested are required to complete the collection of design data, prepare designs and specifications, issue specifications and secure necessary right-of-way. Award will be made early in fiscal year 1957 simultaneously with Farson area laterals.

Eden and Sandy area drains ($44,801).—Construction under prime contract is scheduled through fiscal year 1956. Funds are requested for contract payments and contract administration.

West Side drains ($10,000).—Programed activities provide for the collection of design data, preparation of designs and specifications, and issuance of specifications.

Mr. EVINS. On the Eden project the Bureau is requesting $800,000. It is noted that power revenues will not only bear almost the entire reimbursable cost of this project, but it will be revenue from power projects that are not yet authorized. Is this correct?

Mr. DOMINY. That is correct, sir. By a special authorization act, through Public Law 132, in the 81st Congress.

The Eden project started out originally as one of the Great Plains projects authorized during the drought and depression period with the idea that the great bulk of the cost of this project would be met by contributions from CCC and WPA labor. When the dam was 16 percent completed we got into World War II and work was suspended by the War Production Board and was never authorized under the War Food Amendment of the Wheeler-Case Act, which was true of

a number of the Great Plains projects started about the same time that Eden was, back in 1939. We had no basis for continuing the project but it was taken before the Congress and a special authorization act was passed, which provided that the Secretary of the Interior was to complete the project up to a maximum of 20,000 irrigable acres, with the repayment to be based on $75 per acre, up to 20,000 acres, and with the balance of the cost set aside for repayment from power revenues from the upper Colorado project if and when that project were to be authorized.

DRAINAGE AND MINOR CONSTRUCTION

Mr. EVINS. For drainage and minor construction the Bureau requests $28,000. Your estimated obligations program as indicated in the justifications is $258,349. Yet it appears that the Bureau will have $468,130 unobligated at the end of this year.

(The matter referred to follows:)

CONSTRUCTION AND REHABILITATION, DRAINAGE AND MINOR CONSTRUCTION PROGRAM

COLORADO BASIN, FISCAL YEAR 1956

Obligations program	$258,349
Appropriation request	28,000

The drainage and minor construction program comprises work on projects on which all major construction has been completed, except facilities which are temporarily deferred, or on which small amounts of funds are programed in the budget year. The programed amounts provide for drainage work, minor repair or replacement work, miscellaneous finishing activities, or preconstruction work on the temporarily deferred facilities.

During fiscal year 1956 work under the drainage and minor construction activity in the Colorado Basin will include the following project programs:

All-American Canal, Arizona-California

Drainage investigations will continue and construction will be initiated on a canal crossing for the Mecca-Blythe Highway if a satisfactory agreement is reached with the State of California. Approval of drainage plans prepared by the Coachella Valley County Water District is in accordance with contractual arrangement. Construction of the highway crossing is required by an agreement made with the State of California. All work will be financed with unobligated balances of funds appropriated in prior years.

Paonia project, Colorado

The program includes technical assistance and guidance in water exchange problems and maintenance of the project service facilities pending reauthorization of Spring Creek Dam for construction.

Pine River project, Colorado

Clearing of the reservoir area of brush and timber will be completed. This will terminate all construction activity on this project. The floating debris is a menace to boating, detracts from the appearance of the reservoir, and collects at the spillway gates.

Why is it necessary to have this amount of money when you have twice the amount requested unobligated?

Mr. NIELSEN. I think Mr. Golzé can respond to that Mr. Chairman.

Mr. GOLZÉ. That amount of money unobligated is money appropriated in prior years for work on drainage under the All-American Canal and the Mecca-Blythe highway bridge.

We have a commitment to the Congress to protect that money and keep it available until it is used. It is covered by contractual arrangements with the water users.

Mr. EVINS. Although it is unobligated it cannot be used for any other purpose?

Mr. GOLZÉ. That is right.

MECCA-BLYTHE BRIDGE

Mr. EVINS. The Bureau requests money for the Mecca-Blythe highway bridge. What is the total cost of this bridge?

Mr. JONES. I think we have now reached the point of negotiations with the State of California where we can build, to their satisfaction, a bridge of 215-foot length instead of the 606-foot length we contracted for in 1946.

We estimate the bridge would cost about $170,000, on the basis of preliminary plans, plus some channel work that will amount to about $90,000 in the same area.

Mr. EVINS. Who determines the need or necessity for this bridge?

Mr. JONES. It was involved in a right-of-way negotiation with the State which included a crossing of the Coachella Canal. The Coachella Canal crossed the State highway. We had to have a right-of-way across that highway for the canal, and for a detention basin upstream from the canal. We entered into the contract with the State, whereby the State gave us the right-of-way, both for the canal crossing and the basin crossing and deferred the bridge across the basin for 5 years with the hopes that the highway might be abandoned. The State has been unable to abandon the highway.

Mr. EVINS. What type of highway is it? How much traffic is on the highway?

Mr. JONES. It is not a very heavily traveled highway.

Mr. EVINS. What type of highway is it? How much traffic is on the highway?

Mr. JONES. It is not a very heavily traveled highway.

Mr. EVINS. How much?

Mr. JONES. I can't give you the figures, sir.

Mr. EVINS. You have made no study of the traffic on the highway?

Mr. JONES. No, sir.

Mr. EVINS. How much again is the cost of the bridge?

Mr. JONES. $170,000.

Mr. EVINS. What is the attitude of the local people?

Mr. JONES. Divided, I would say. Some of them would like to have the bridge built, some of them not.

Mr. EVINS. Information comes to the attention of the committee that there is considerable opposition to it, and you tell us that you haven't even made a traffic study and that it is really not much of a road anyway, yet you want to build a new bridge there.

Mr. NIELSEN. You are correct in that latter statement but we are bound by a contract to perform there, regardless of the amount of traffic. That was the condition under which we got right-of-way from the State highway commission.

Mr. EVINS. It appears that a bridge of the cost of the amount indicated is being built which appears to be neither necessary, desirable, nor needed and in fact there is considerable hostility and opposition among the local people. It appears to be a very bad deal for the Government. It is on an area where there is not much

traffic. There has been no traffic study or survey and it is for an almost abandoned road, and many people think it should be abandoned.

Mr. MURRAY. If the State highway commission had desired to abandon it, who wants the bridge there?

Mr. NIELSEN. Each time the State highway commission and we have tried to bring it up to the point of abandonment, we have been frustrated. Now, not all of the local people resent that highway remaining there. In fact, I think the effort to retain that highway comes from the local people. Incidentally, the bridge is not under construction.

Mr. EVINS. Do you think that in view of the objection that an amicable and satisfactory and economical settlement could be effected?

Mr. NIELSEN. We have certainly tried, sir.

Mr. EVINS. How diligently?

Mr. NIELSEN. Very hard, because we were pretty well set back on our heels last year on this bridge.

Mr. EVINS. You are no further along this year than you were last year?

Mr. NIELSEN. No, sir. The highway commission says it cannot let us off the hook, and we are on the hook.

Mr. JENSEN. To what extent would the bridge be used more than the temporary bridge, which is a pretty good bridge, is being used today, if we expended this money. What was your estimate?

Mr. NIELSEN. $170,000 plus $90,000 for channel work.

Mr. JENSEN. How many more people would drive across that bridge than would drive across the present bridge which is, I understand, a very good bridge?

Mr. NIELSEN. No more people, Mr. Jensen, because if you will recall you immediately enter a box canyon with the road in the bottom of the canyon, and it is twisty and covered with debris every time it rains, when it does rain.

Mr. JENSEN. How many automobiles go across that bridge a day on an average?

Mr. NIELSEN. I wouldn't like to guess. Traffic is not at all heavy, Mr. Jensen.

Mr. JENSEN. I should say it isn't.

Mr. HAND. Are construction funds for the building of that bridge requested in this budget?

Mr. NIELSEN. Yes, sir.

Mr. HAND. Would you be unhappy if the committee disallowed them?

Mr. NIELSEN. Actually, those funds are available from carryover, on construction—would I be unhappy?

Mr. HAND. Yes.

Mr. NIELSEN. Personally, no, sir.

REHABILITATION AND BETTERMENT

Mr. EVINS. Under rehabilitation, the Bureau is requesting $786,000 or rehabilitation and betterment, on two projects, indicated on pages 315 and 316.

Mr. Reporter, please insert these pages in the record.

(P. 315 and p. 316 of the justification follow:)

CONSTRUCTION AND REHABILITATION—REHABILITATION AND BETTERMENT OF EXISTING PROJECTS

COLORADO BASIN, FISCAL YEAR 1956

Obligations program	$785,000
Appropriation request	785,000

On irrigation projects which have been in operation for a considerable period, the water storage and conveyance facilities have frequently exceeded their useful life and require excessive maintenance programs to continue operations. These deteriorated and obsolete facilities often result in insufficient use and loss of valuable irrigation water. The rehabilitation and betterment program provides for restoring such facilities to a satisfactory operating condition. Work under this program was authorized by the act of October 7, 1949, as amended by the act of March 3, 1950.

During fiscal year 1956 rehabilitation and betterment work in the Colorado Basin will consist of the following project programs:

Salt River project, Arizona

Stewart Mountain Dam: Grouting of horizontal construction joints will be continued. It is anticipated that observations during the forthcoming year will reveal locations where such grouting will be required to adequately complete the grouting program started in fiscal year 1953.

Canals and conduits: Work includes lining one or both banks of main canals at critical locations totaling approximately 60,000 square feet and for constructing 4 additional canal structures.

Laterals: Work will continue under this item through the year. The scheduled funds for this fiscal year will be used to construct approximately 15 miles of additional lining, approximately 3 miles of pipelines for replacement of open laterals, and for continuing the rehabilitation of lateral structures.

Grand Valley project, Colorado

The program for fiscal year 1956 includes the replacement of flumes No. 1, at station 84+99; at station 136+99; 3, at station 333+17; 4, at station 433+64; and Mutual Mesa flume; all of these structures are on the lower lift canal. On the upper lift canal, flumes Nos. 1, at station 93+80; 2, at station 155+51; 3, at station 393+85; 4, at station 562+59 will re replaced as well as 450 feet of bench flume between flume No. 1 and flume No. 2. The tail race structure on the pumping plant would be modified to include new power-operated gates, an activating motor and necessary foundation and protective work.

Many structures on the Orchard Mesa Division have been used beyond their economic lives and are in very poor condition. Material and manpower shortages existing during the past war years prevented the water users from accomplishing badly needed repair work. The present rehabilitation and betterment requirements are beyond the water users' financial ability to handle concurrently with other expenditures.

Mr. EVINS. Have repayment contracts been executed on this work?

Mr. JONES. On the Salt River project, yes. We have repayment contracts.

Mr. EVINS. How about the other project?

Mr. LARSON. A draft of contract has been prepared and a resolution passed by the Orchard Mesa Irrigation District board of directors approving the form of draft of the contract in an amount not to exceed $180,000, covering the construction and repayment of the proposed rehabilitation and betterment program, and the board is ready to sign it if the $150,000 requested is appropriated.

OPERATING AND MAINTENANCE—BUREAU OF RECLAMATION

GILA PROJECT

Mr. EVINS. Mr. Reporter, insert pages BR–469, BR–470, and BR–471.

(Pp. BR–469, 470, and 471 of the justification follow:)

GILA PROJECT, ARIZONA

(For project data see p. BR-73)

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Fiscal year 1955:	
Allotment	$699,000
Funds advanced by water users	2,990
Total obligations, 1955	701,990
Fiscal year 1956:	
Allotment	446,000
Funds advanced by water users	43,090
Total obligations, 1956	489,090

Work proposed, fiscal year 1956

	Program, 1956	Increase or decrease from 1955
IRRIGATION FACILITIES		
Storage system: For the operation and maintenance of the Gila project's allocated share of the All-American Canal system reserved works at Imperial and Laguna Dams, the Gila headworks or main river gates, the Gila desilting basin and the Gila gravity main canal diversion gates and structures. Small increase is due to additional work to be done on the reserved works and on the Gila trash racks and disposal equipment	$23,564	−$2,421
Carriage system: The Gila project carriage system consists of approximately 140 miles of main canals and 4 major pumping plants. Operational features include patrolling the canals, adjusting and setting the numerous check gates, removal of debris from trash racks and maintaining pumping-plant equipment. Increase in power cost over 1955 is due to increased need for water for additional acreage. 127 miles of operating roads must be maintained. Reduction in this item results from netting increased operation requirements with the transfer of $100,070 capital costs from O. and M. costs to the C. and R. control schedules under the title "Future Year Capacity Provisions"	272,305	−75,729
Distribution system: There are 46 miles of concrete-lined laterals on the Yuma Mesa capable of serving 20,000 acres of land, of which about 15,300 will be irrigated in 1956, an increase of 300 acres over 1955. In the Wellton-Mohawk division there will be 5 completed distribution system units with 68 miles of concrete-lined laterals, comprising approximately 42,000 acres at the end of fiscal year 1955. At that time approximately 26,000 acres will be under irrigation. Early in fiscal year 1956 Dome unit No. 2 and Wellton unit No. 2 will be completed, adding 12,700 acres to the completed system. The total acreage under completed irrigation systems in this division will be about 54,800 acres, of which it is anticipated that about 30,000 will be under irrigation by the end of calendar year 1956. The laterals require frequent cleaning to remove the blow sand, moss, and vegetation. More than 50 miles of operating roads must be maintained, and other necessary maintenance work carried on. Decrease is due to net of increased pumping requirements and the assumption of block 1 and block 2 by Wellton-Mohawk Irrigation District	184,199	−87,317
Drainage system: For the 7½ miles of drains paralleling the Gila gravity main canal, measurement of flow and normal maintenance	9,022	−2,433
Replacements and improvements: None		−45,000
Total obligations	489,090	−212,900

Mr. EVINS. The amount is $446,000 for the Gila project.

When does the Bureau plan to turn over all or part of this project to the irrigation district?

Mr. JONES. We will turn over the project to the district in completed portions as soon as the district is in condition to take them. They have taken over about 32,000 acres now, and we hope that they will be ready to take over the additional completed work next year.

Mr. EVINS. Who determines when the projects are ready for turning over to the district?

Mr. JONES. It is provided in the repayment contract that the districts will take over the parts of the project as completed. It is a matter of mutual agreement between the Bureau and the district.

Mr. EVINS. How much of these projects that have been completed are still being maintained from funds of the Federal Government?

Mr. JONES. A little more than half at the present time.

Mr. EVINS. Will this be repaid by the local people?

Mr. JONES. Part of it is advanced and the remainder will be repaid.

Mr. EVINS. When some of these are turned over to the local people, does your Bureau as a matter of practice continue to maintain them or do the local people then go ahead and do the maintenance?

Mr. JONES. After they are turned over?

Mr. EVINS. Yes.

Mr. JONES. They maintain them.

Mr. EVINS. You don't do any further work?

Mr. JONES. No, sir.

IMPERIAL DAM AND YUMA PROJECTS

Mr. EVINS. Insert pages 475, 479, 480 and 481, on the Imperial Dam, and the maintenance of the Yuma project.

(Pages BR–475, BR–479, BR–480 and BR–481 of the justification follow:)

BOULDER CANYON PROJECT, IMPERIAL DAM, ARIZONA-CALIFORNIA

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$49,986
Allotment, fiscal year 1955	$49,000	
Total obligations, 1955		49,000
Allotment, fiscal year 1956	$53,500	
Total obligations 1956		53,500

Work proposed, fiscal year 1956

	Program, 1956	Increase or decrease from 1955
IRRIGATION FACILITIES		
Carriage system: River control operation and maintenance: Supervision of river control operations, preparation and maintenance of master schedule, silt investigations of river deposits, measurements of river flows and diversions therefrom, and related expenses will require this amount. Maintenance of the newly installed radio facilities is increased by $1,500 to insure the proper working order of this vital communication facility	$53,500	+$4,500
Total obligations	53,500	+4,500

YUMA PROJECT, ARIZONA-CALIFORNIA

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$200,003
Fiscal year 1955:		
Allotment	$125,500	
Funds advanced by water users	73,334	
Total obligations, fiscal year 1955		198,834
Fiscal year 1956:		
Allotment	$277,000	
Funds advanced by water users	81,430	
Total obligations, fiscal year 1956		358,430

Work proposed, fiscal year 1956

	Program, fiscal year 1956	Increase or decrease from fiscal year 1955
IRRIGATION FACILITIES		
Carriage system: For the continuation of normal operation of the carriage system and a small increase in the maintenance of the Yuma main canal. The normal items of maintenance will continue with additional work of a periodic nature such as chaining moss for the full length of the canal and resloping the banks. Carriage system costs include payment of the Yuma project's share of All-American Reserved Works and the reservation division share of the All-American Canal operation and maintenance to station 775, which is performed by the Imperial Irrigation District, payment for which is advanced by the other users	$62,283	+$3,822
Distribution system: Operation of the distribution system will continue normally at slight additional cost. Maintenance of the reservation division system will be increased by $5,435 in accelerating the rapair of old structures and increased care of the lateral banks in an effort to reduce the number of ditch breaks which have occurred frequently during the past year. Maintenance in the Yuma auxiliary project was kept to a bare minimum during the past year and this year it is necessary to accomplish work which was deferred previously, by repairing many of the stand boxes and lateral structures in keeping with the concurrent program of rehabilitation scheduled for 1956. The valley division distribution is operated and maintained by the Yuma County Water Users Association	104,601	+12,195
Drainage system: For the continuation of normal maintenance of the drainage system	11,244	−351
Replacements and improvements: Construction of drain line No. 9 will begin. This drain will reclaim lands which are badly seeped and are becoming unproductive. The drain is located on Indian lands in the Reservation Division and will be approximately 2 miles in length emptying into the main drain. Rights of way were acquired from the Indian allottees during the past year. Increase due to long required replacement of railroad trestle, cost to be repaid by water users	157,302	+150,430
Total obligations—irrigation	335,430	+166,096
POWER FACILITIES		
Electric generation: For the continuation of normal operation of the Siphon Drop powerplant. A reduction in maintenance results from completion of extra work programed and performed during the previous year. General maintenance of the plant and grounds will continue	22,161	−5,942
Transmission expense: Operation and maintenance of the Siphon Drop switchyard will continue normally with a reduction in maintenance	839	−558
Total obligations—power	23,000	−6,500
Total obligations—all facilities	358,430	+159,596

Mr. EVINS. When do you plan to turn these facilities over to the local people?

Mr. JONES. A part of it will still be included in the All-American Canal system, of which the dam is a part. All the canals have been turned over.

A part of the dam has been turned over to the district.

We will be required, I believe, to maintain a part of the operation and maintenance of the Imperial Dam, indefinitely.

Mr. EVINS. Will the Yuma project have to be maintained indefinitely?

Mr. JONES. No, the Imperial Dam.

Mr. EVINS. I speak of the Yuma project.

Mr. JONES. Part of it has been turned over to the water users for operation and maintenance, the part we call the Yuma Valley division. We are now negotiating with another irrigation district for turning over more of the Yuma project for operation and maintenance.

Mr. EVINS. How extensive is the maintenance at this time of the Federal Government on the Yuma project?

Mr. JONES. We maintain about 20 miles of main canal and a lateral system for about 20,000 acres. The water users maintain the canal for another 40 or 50 miles and the distribution system for 55,000 acres.

COLORADO RIVER, PARKER-DAVIS AND HOOVER DAM PROJECTS

Mr. EVINS. Concerning maintenance of the Colorado River, insert pages BR–486, 487, and 488, and concerning maintenance of the Parker-Davis project, pages BR–490 and 491, and the Boulder, or Hoover Dam, insert pages BR–493, 495, and 496.

(The pages referred to follow:)

COLORADO RIVER FRONT WORK AND LEVEE SYSTEM, ARIZONA, CALIFORNIA, AND NEVADA

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$1,002,875
Allotment, fiscal year 1955	491,000
Total obligations, fiscal year 1955	491,000
Allotment, fiscal year 1956	491,000
Total obligations, fiscal year 1956	491,000

JUSTIFICATION OF ESTIMATE

Work proposed, 1956

	Program, 1956	Increase or decrease from 1955
OPERATION		
River Surveys and Investigations: For the continuation of studies of river problems, including routine aggradation and retrogression surveys, Davis Dam to boundary; river bottom investigations in connection with land use ownership, routine sedimentation and salinity studies, special surveys as required; administration of federally-owned river-bottom lands; preparation and publication of the annual report for the Office of River Control; and for supplies and expense necessary to the above. Decrease is due to deletion of surveys by the Fish and Wildlife Service from the work program	$99,700	−$2,000
MAINTENANCE		
Structures and improvements: Minimum routine maintenance of 13.9 miles of levee in the Needles-Topock levee system, including the Needles levee system completed in 1946 and the Needles-Topock Channel Levee completed in fiscal year 1954; continuation of work necessary for Needles-Topock Channel retention, 11.2 miles in length, the original channelization having been completed in fiscal year 1954; routine maintenance of temporary bridge, Needles; the Needles operating yard, 14 Government-owned houses, and 13 Government-owned trailer units of the Needles housing project; routine inspection of 42 miles of levees and maintenance of levees below Morelos Dam in the Yuma levee system; maintenance work as required on the Palo Verde temporary weir; and maintenance of the Cibola Pilot Channel, comprising work necessary for retention of flow through the channel, and local bank protection work. Decrease is due to a reduction in the estimated requirement for channel retention work	145,600	−18,845
Dams and waterways: Continuation of the original channelization and channel levee construction by dredge operation, and construction of channel training structures, and bank-protection work under the "Channelization, Davis Dam to Needles," program. Increase covers the estimated cost of constructing approximately 4½ miles of levee embankment to final grade and surfacing levee by use of land equipment	207,783	+93,677
Replacements and improvements: Purchase of miscellaneous equipment including replacement of compressor, minor improvements to dredge equipment, and purchase of miscellaneous small equipment for shop operation; and major overhaul of work equipment. Decrease is because major overhaul of dredge will not be required during fiscal year 1956	37,917	−72,832
Total obligations, all facilities	491,000	

Parker-Davis Project, Arizona-California-Nevada

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$1,865,422
Fiscal year 1955:	
Allotment	2,046,800
Funds advanced by Metropolitan Water District	164,746
Total obligations, 1955	2,211,546
Fiscal year 1956:	
Allotment	2,136,000
Funds advanced by Metropolitan Water District	175,415
Total obligations, 1956	2,311,415

Work proposed, 1956

	Program, 1956	Increase or decrease from 1955
POWER FACILITIES		
Electric generation: For normal operation and maintenance of Parker Dam and Davis Dam and powerplants	$928,533	−$23,310
Other production expense: For river control, flood warning system, and other normal costs	15,575	+575
Transmission expense: For normal operation and maintenance of the Parker-Davis transmission facilities	1,278,107	+33,404
Replacements and improvements: For minor improvements and normal replacements of short-lived system properties	89,200	+89,200
Total obligations	2,311,415	+99,969

Boulder Canyon Project, Hoover Dam and Powerplant, Arizona-Nevada

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$1,327,547
Fiscal year 1955:	
Allotment	1,378,778
Reserved for savings	−130,000
Total obligations, fiscal year 1955	1,248,778
Fiscal year 1956: Allotment	1,178,000
Total obligations, fiscal year 1956	1,178,000

Work proposed, 1956

	Program, 1956	Increase or decrease from 1955
POWER FACILITIES		
Electric generation: For continuation of normal operation and maintenance of Hoover Dam, powerplant, and appurtenant works and replacements such as elevator equipment, steel stairs, expansion joint hose, water piping, power plant roof drainage system, station wagons, and miscellaneous equipment. Decrease due to less replacement type work	$1,175,800	−$70,778
Transmission and distribution expense: For continuation of the relatively small operation and maintenance expense borne by the Government on Government-owned and operated facilities	2,200	
Total obligations, power	1,178,000	−70,778
Total obligations, all facilities	1,178,000	−70,778

BOULDER CANYON PROJECT, BOULDER CITY MUNICIPAL OFFICE, NEVADA

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954	$492,580
Fiscal year 1955:	
Allotment	549,000
Unobligated balance	−30,000
Total obligations, fiscal year 1955	519,000
Allotment, fiscal year 1956	519,000
Total obligations, fiscal year 1956	519,000

Work proposed 1956

	Program, 1956	Increase or decrease from 1955
City utilities: This amount is the minimum required for operation and maintenance of the electric transmission and distribution system and the water system, including storage tanks and filter plant. As these facilities have been in operation for more than 20 years constant repair and replacement is required. This amount will not allow for any deferred maintenance or extension of the systems	$99,000	
City management: This is the minimum requirement for administration, engineering, accounting, property management, and other miscellaneous expense	124,100	−$2,000
Municipal facilities: This is the minimum requirement to maintain police and fire protection, collection of garbage and other health and sanitation costs, maintenance of streets, sidewalks, parks and parkways, and Government buildings including Government-owned living quarters	295,900	+2,000
Total obligations	519,000	

LACK OF SUFFICIENT FUNDS FOR MAINTENANCE

Mr. EVINS. What are your major maintenance problems on these three projects? I assume it is a lack of sufficient funds?

Mr. NIELSEN. On the Colorado River front work and levee system work, we are badly handicapped for lack of funds. We haven't operated our dredge this year, and it doesn't look like we will operate our dredge next year.

The river channel which we have completed so far is deteriorating very badly for lack of maintenance and for lack of a proper approach channel upstream.

Mr. EVINS. How much did you request, in line with Mr. Jensen's suggestion, of the Bureau of the Budget, for maintenance on the Colorado River?

Mr. NIELSEN. $1,247,000.

Mr. EVINS. How much was allowed?

Mr. NIELSEN. $491,000.

Mr. EVINS. What was the reason for the cut?

Mr. NIELSEN. Well, that falls within our general operation and maintenance funds and we got a general cut in operation and maintenance, and this is all we could squeeze out for the Colorado River front work and levee system, after we took adequate care of those projects in which we must keep the water running for irrigators.

Mr. EVINS. In other words, you are still maintaining irrigation projects for local interests, while neglecting some of the projects of the Federal Government?

Mr. NIELSEN. While neglecting some?

Mr. EVINS. For this one, you indicated you don't have enough funds.

Mr. NIELSEN. That is correct, sir, but I can't quite accept the idea that we are maintaining projects for water users that we could have gotten them to take over up to this point.

We have turned over to the water users all the areas and all the operation and maintenance that they have been ready and willing to accept.

Mr. EVINS. On this project, which is our responsibility, you have recommended a reduction of funds?

Mr. NIELSEN. That is right. We have had to come to a recommendation or an assignment of insufficient funds.

Mr. EVINS. How much additional funds do you feel that you need for the Colorado River maintenance work for the next fiscal year, over that budgeted?

Mr. NIELSEN. We feel that we had a completely justifiable program for $1,247,000.

Mr. EVINS. What is the situation with respect to the Parker-Davis?

Mr. NIELSEN. There, we received a cut, not nearly as severe but it hurts nevertheless, because we have cut Parker-Davis successively over the years.

Each year, we have been cut deeper, and this year we were cut from a budget request of—did you ask me for the budget request?

Mr. EVINS. Yes.

Mr. NIELSEN. A budget request of $2,285,000 to $2,136,000. That is roughly $150,000. We are not doing an adequate job of maintenance on our Parker-Davis system.

Mr. EVINS. How about maintenance funds for the Boulder, or Hoover Dam project?

Mr. NIELSEN. There we were cut $82,000, from $1,260,000, down to $1,178,000, and there, likewise, we are not taking care adequately of the Federal property, in our judgment.

Mr. EVINS. What was the Bureau's total operation and maintenance request of the Bureau of the Budget?

Mr. GOLZÉ. $28,037,000.

Mr. EVINS. What was the total amount authorized by the Bureau of the Budget for this purpose?

Mr. GOLZÉ. $24 million.

Mr. EVINS. How much did you have last year for this work?

Mr. GOLZÉ. The appropriation for operation and maintenance in fiscal year 1955 was $23,107,628.

Mr. Chairman, if I might correct that last figure, the appropriation for fiscal year 1955, was $21,500,000. The difference between that and the figure I read represent funds advanced.

Mr. EVINS. You had $21.5 million this year, and you are budgeted $24 million for the next year, which is more than the current year, and in addition you must have turned over maintenance of some of your facilities to local interests during the year. Is that a correct statement of the situation?

Mr. NIELSEN. That is a correct general statement, yes, sir.

Mr. EVINS. Is it your position that funds for the current year were inadequate for maintenance?

Mr. NIELSEN. Yes, sir.

Mr. EVINS. And they are still inadequate for the next year, although somewhat improved?

Mr. NIELSEN. Yes, sir, but we would still be unable to do good work on the Colorado River Front Work and Levee System, for example. With this allowance for Parker-Davis, we would still be putting out fires rather than doing preventive maintenance on our system. It is that sort of thing.

FUNCTIONS THAT SHOULD BE TURNED OVER TO LOCAL INTERESTS

Mr. EVINS. Supply for the record, the amount of completed work that could be or should be turned over to local interests.

Mr. NIELSEN. Yes, sir.

Mr. EVINS. Which would, in effect, reduce your maintenance cost?

Mr. NIELSEN. For this basin or for the Bureau at large?

Mr. EVINS. We will say for all of your work.

(The information requested follows:)

STATUS OF OPERATION AND MAINTENANCE ON FEDERAL IRRIGATION PROJECTS FOR WHICH OPERATION AND MAINTENANCE FUNDS ARE REQUIRED

Gila project

North Gila diversion—South Gila diversion: About 8,000 acres irrigated out of a potential 15,000. Presently by water rentals only. Bureau does not operate or maintain lateral systems.

Yuma Mesa: Presently irrigated 20,000 acres out of a potential 25,000. Contract for water user operation and maintenance in process of negotiation. Bill authorizing contract term now before Congress.

Wellton-Mohawk: Water for 55,300 acres now out of 75,000 acres in project. Water users taking over operation and maintenance as rapidly as possible. Irrigation blocks 1 and 2 transferred January 1955.

Yuma auxiliary: These 3,390 acres will get their water from the Gila project in the future. Once Yuma Mesa and Wellton-Mohawk are under water user control it will no longer be possible for Bureau to operate this project efficiently. It is suggested that eventually arrangements will be made for this group to combine with Yuma Mesa.

Yuma project

Reservation division: Negotiations are underway for the transfer of operation to the Bard Irrigation District. Such a transfer requires concurrence by the Bureau of Indian Affairs which represents the Indian-owned lands of the area.

Valley division: Operation and maintenance is now undertaken by water users. The project advances funds for the operation and maintenance of works common with other divisions of the Yuma project or with other projects.

Yuma auxiliary

See Gila project.

Boulder Canyon project

Imperial Dam: These works, with the exception of the All-American Canal headworks, trashracks and desilting basins which are operated by the Imperial Irrigation District, together with Laguna Dam, are operated by the Bureau of Reclamation. Because of the Federal obligation under the Mexican Treaty and of the conflicting interests of the various States in the waters of the Colorado River, it appears that the present Federal operations at Imperial and Laguna Dams can be expected to continue.

Central Valley project

Distribution systems: The Bureau of Reclamation has contracted with 11 irrigation or water districts for the construction of water distribution systems whose computed cost will be in excess of $52 million. Upon completion of these systems or any usable major portions of them and upon acceptance by the irriga-

tion districts, operation and maintenance of the systems becomes the responsibility of the water users.

It is expected that the storage and carriage works of the project will continue to be operated and maintained by the Bureau of Reclamation. Because of the very large number of districts contracting for water and the multipurpose nature of the works it appears that the Bureau will operate indefinitely. There is no indication that the State of California or one of its agencies are now in a position to take over the Central Valley project.

Cachuma project

Not completed. Water users operating distribution system already.

San Luis Valley

Operation of Platora Dam cannot be turned over to district because the major lawful use of the reservoir is for flood control. Operation, because of the Rio Grande compact and State conflicts, and because of Federal interest in flood control, has remained a Bureau of Reclamation responsibility. District may take over operation and maintenance once consent agreements for storage of water for irrigation are secured.

Minidoka project

The Bureau of Reclamation operates and maintains only the reserved works (Jackson Lake, Island Park, American Falls, Grassy Lake, and Lake Walcott) and the finished portion of the incomplete north side pumping division. The latter will be operated and maintained by the water users after project completion. No entity exists which could take over the reserved works and operate them for the benefit of the multitude of affected water user associations. Legislation would probably be required before such an action could take place even if an entity was created. Palisades Dam and Reservoir which form an integral part of the storage facilities are currently under construction.

Boise project

Only reserved works including multipurpose features constructed by the Bureau and the Army Corps of Engineers are operated by the Bureau. The situation is similar to Minidoka.

Milk River project

Only reserved works are involved. Federal operation and maintenance of reservoirs retained because of the relatively large Indian interest in the project. Project on an advanced fund basis except for $2,600 for flood control operations.

North Platte project

Only reserved works operated by Government. Since project is interstate (Wyoming-Nebraska) and other projects are involved (Kendrick and Missouri River Basin) current type of operation will probably continue.

Carlsbad project

Bureau of Reclamation operates Alamogordo Dam. Once this structure is fully completed including spillway repairs, there appears to be no reason why water users should not take over operation and maintenance. Alamogordo is a multipurpose structure and will have to be operated as such. If operation and maintenance is transferred, the Government may still be obligated for approximately $3,000 annually for flood control operations.

Rio Grande project

This is one of the few remaining projects entirely operated by the Bureau. The irrigation portion of the project is on an advanced fund basis. The deterrent to local operation is that the project is interstate (New Mexico-Texas) and there is a Federal requirement in supplying water to Mexico in accordance with treaty requirements.

W. C. Austin

Operation and maintenance of the irrigation facilities was transferred to the water users' organization October 1, 1952. Altus Dam and Reservoir is operated by the Bureau due to flood control operations and for the release of municipal water to the city of Altus which must be made through the irrigation outlet works. Funds are advanced for the operation of the dam and reservoir except that portion of such allocated to flood control.

Klamath project

The Bureau operates the Tule Lake division and Modoc unit No. 1. Negotiations are underway for a repayment contract so transfer of all but reserved works can be made. Works are reserved because of interstate nature of project (Oregon-California) and the numerous water user associations involved.

Columbia Basin project

Project incomplete, however, because of complex nature of project and variety of services provided there is serious question as to the possibility of transfer of more than irrigation distribution facilities.

Yakima project

Kennewick division is under construction. Distribution works on the Tieton, Sunnyside, and Kittatas divisions have already been transferred. Roza division is expected to pass to water user control in January 1956. After completion of Kennewick division it too will be transferred.

Kendrick project

Amendatory repayment contract being negotiated with water users prior to their assumption of operation and maintenance. However, storage works will be reserved because of interstate nature of stream and multipurpose aspects of project.

Riverton project

Third division, which is Bureau of Reclamation operated, is incomplete.

Shoshone project

The Heart Mountain division which is the only division operated by the Bureau, is incomplete.

Missouri River Basin

The Savage unit has been transferred for local operation and maintenance. Other units have not reached a stage where full water user operation and maintenance can be expected.

Mr. DOMINY. May I make one statement addressed to that question: During 1954, we have transferred irrigation work serving 200,539 acres of irrigable land on the Gila project, the Deschutes project, Boise, Klamath, Orland, Missoula Valley, and we have transferred additional facilities where the irrigation distribution canals had already been transferred, Vale, Owyhee, and Minidoka.

Now, our problem on this operation and maintenance, the overall picture which resulted in our cutting drastically the Colorado River front work and levee system allotment, is because of an overall operation and maintenance ceiling which the Bureau of the Budget established, which covered both power and irrigation facilities.

Within that ceiling, we had to take into account new power-transmission lines, new power-production facilities, as well as new irrigation on the Columbia Basin project, the Minidoka project, the Gila project, and in the Missouri Basin, which are still within the construction and development period, and must come under operation and maintenance by the Government and can't be turned over to the water users.

That accounts for our being forced to reduce soil and moisture allotment and the Colorado River front and levee system, where—we aren't faced with that day-to-day cost of running power lines and maintaining them and serving irrigation facilities.

Mr. EVINS. But you are being given by the Bureau of the Budget's own suggested fund for that year, $3 million more.

Mr. DOMINY. We made an appeal and got it raised somewhat over the ceiling in 1955, but we didn't get it raised proportionately to the new work that came into the picture.

Mr. EVINS. In addition to your problem here on maintenance, what other problems do you have, because of inadequate funds or insufficient funds?

Mr. NIELSEN. We have looked at our difficulties, and in those basins, those are our three problems.

Mr. MURRAY. I am not sure whether I understand this testimony that has just been given.

It is my understanding from your testimony that last year, because of lack of sufficient funds appropriated, you had to cut out maintenance of projects or postpone into this year the maintenance of projects that you felt were necessary, and even though you turned over projects to local interests, and even though the Bureau of the Budget authorized you greater funds for maintenance, you still require more to properly maintain your projects; is that correct?

Mr. NIELSEN. That is correct, because we have picked up more facilities during the past year. We have picked up facilities faster than we have gotten rid of them.

Mr. MURRAY. If you have the appropriated funds only that are requested, here, will you have to postpone the maintenance of operations that you feel are necessary?

Mr. NIELSEN. That is right. Instead of doing preventive maintenance, let's say, we will be patching.

Mr. MURRAY. Am I correct in my assumption that that constant postponing of preventive maintenance, actually results in an increased cost?

Mr. NIELSEN. It would be a greater cost; yes, sir.

Mr. MURRAY. What is your opinion of the amount necessary for preventive maintenance over and above the amount that the Bureau of the Budget has authorized.

Mr. NIELSEN. On the separate projects, the Colorado River Front Work and Levee System, about three-quarters of a million dollars short of what we think is a fully justifiable program. Four million dollars on all Bureau projects.

Mr. MURRAY. I don't mean fully justified, I mean fully necessary in the opinion of people who have jurisdiction over maintenance.

Mr. NIELSEN. $4 million is the figure I would give.

Mr. MURRAY. That is all.

SOIL AND MOISTURE FUNDS

Mr. JENSEN. How much, if any, unexpended funds, were carried over from fiscal year 1954 into fiscal year 1955 for operation and maintenance?

Mr. GOLZÉ. There were no funds carried over. They do not carry over into the following year on operation and maintenance.

Mr. JENSEN. So, each year we appropriate the amount that you think you need; if you don't spend it all, it reverts back into the Treasury; is that right?

Mr. GOLZÉ. Yes, sir.

Mr. DOMINY. And, as you well know, Mr. Jensen, except for specific items designated as nonreimbursable, such as Colorado River Front Work and Levee System, all of that operation and maintenance, will be returned to the Treasury in the year appropriated, from the charges to the water users.

Mr. JENSEN. Do I understand that you are privileged to take funds from the "Soil and moisture" appropriation to use for any other purpose?

Mr. DOMINY. No, sir, but in our justification to the Bureau of the Budget—for example, in the 1956 justification, we had a Soil and Moisture Conservation estimate of our requirements, of $800,000.

The Bureau of the Budget didn't cut that item specifically. They merely gave us a ceiling on all items included in the operation and maintenance budget, which includes, as I say, power and irrigation, soil and moisture conservation, and Colorado River front work and levee system.

We first had to allot the absolutely necessary funds to maintain the power-transmission lines and powerplants and the irrigation facilities. Then, we had to make our cuts, primarily in these other items, such as Soil and Moisture Conservation, and Colorado River Front Work and Levee System, although we did trim all the operating projects right down to the bare minimum as Mr. Nielsen has said.

Mr. JENSEN. Under this whole maneuver that you explained, does it in any way affect the funds which we appropriated for soil and moisture conservation, for the Department of the Interior?

Mr. DOMINY. Not what will be appropriated.

The justification in the President's budget that is before your committee shows an estimate of $500,000 for soil and moisture conservation for fiscal year 1956. We had requested $800,000, but reduced it to the $500,000 figure because of this overall ceiling on operation and maintenance items.

Mr. JENSEN. When you are talking about soil and moisture conservation, you are getting pretty close to home, as far as I am concerned.

Will you furnish for the record, just exactly how you expect to use this $800,000, which you request for soil and moisture conservation? Will you break it down?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. Mr. Chairman, I would like to have them do that and furnish it for the record.

Mr. EVINS. Please supply this for the record.

(The information requested follows:)

Soil and moisture conservation operations for fiscal year 1956, by projects as presented to the Bureau of the Budget

REGION 1

Regional office administration	$3,500
Regional participation in fire-prevention program on withdrawn lands	6,000
Boise project: Continue reseeding and streambank protection on withdrawn lands	20,000
Columbia Basin project: For continuation of sand dune control, seeding windblown areas, and noxious weed control on public lands	16,000
Minidoka project: Water conservation and control and weed control on withdrawn lands	10,500
Mountain Home project: Continuation of reseeding of burned-over areas of development lands	5,000
Yakima project: Reseeding wind erosion areas and seepage control	4,000
Subtotal, region 1	65,000

Soil and moisture conservation operations for fiscal year 1956, by projects as presented to the Bureau of the Budget—Continued

REGION 2	
Regional office administration	$10,000
Central Valley project: Revegetation of public lands, principally for protection of Keswick Reservoir, erosion control and conservation survey	46,000
Klamath project: Revegetation of wind eroded areas and land-use management program on withdrawn lands	10,000
Solano project: Land-use management on public lands	1,000
Cachuma project: Land-use management and revegetation of acquired lands	1,000
Subtotal, region 2	68,000
REGION 3	
Gila project: Vegetative planting for soil stabilization, conservation practices on development farms and methods of water use economy	16,500
Salt River project: Salt cedar control and canal loss determinations	16,000
Bridge Canyon project: Maintaining cooperation with other agencies especially in securing protection of reclamation facilities from sedimentation; and an inventory of minor watersheds to determine sediment yield potential and practicability of flood-control measures	26,500
Marble Canyon project: Completion of inventory of sediment yield potential and possibilities of sediment reduction through soil and moisture conservation operations	6,000
Subtotal, region 3	65,000
REGION 4	
Regional administration and regionwide investigations of erosion problems associated with operating projects	16,000
Regional investigations and surveys on acquired and withdrawn lands to determine conservation problems. Control of surface runoff and provide for proper use, management, protection, improvement and maintenance of those lands	5,000
Grand Valley project: Badgerwash Cooperative erosion and sedimentation study	2,000
Uncompaghre project: Investigation of erosion problems and preparation of plans for conservation work	3,000
Moon Lake project: Channel erosion control in Cottonwood Wash and Duchesne River continued in cooperation with Water Users' Association	32,000
Sanpete project: Control of damaging erosion and runoff	7,000
Provo River project: Measurement of seepage losses from test and demonstration canal lining	5,000
Subtotal, region 4	70,000
REGION 5	
Regional administration and supervision and regionwide soil and moisture conservation planning	11,000
Carlsbad project: Seeding and structural installations to control erosion; and weed-control demonstration	25,000
Tucumcari project: Seeding and structural installations to control erosion; and weed-control demonstration	12,000
W. C. Austin project: Seeding and structural installations to control erosion; and weed-control demonstration	15,000
Vermejo project: Seeding and structural installations to control erosion; weed-control demonstration; and investigations and surveys	27,000
Fort Sumner project: Weed-control demonstration	3,000
Middle Rio Grande project: Seeding and structural installations for erosion control; and weed-control demonstration	25,000
Rio Grande project: Salt Cedar control	7,000
Subtotal, region 5	125,000

Soil and moisture conservation operations for fiscal year 1956, by projects as presented to the Bureau of the Budget—Continued

REGION 6

Regionwide plans, investigations and surveys	$20,000
Regional electro reclamation program	12,500
Missouri River Basin project:	
Angostura unit: Erosion control	8,500
Heart division: Erosion control, revegetation and siltation studies	7,000
Crow Creek unit: Erosion control	2,000
Belle Fourche project: Noxious weed control	1,000
Huntley project: Improvement of saline soils and studies on demonstration sections of lining	11,500
Milk River project: Channel control and revegetation	5,000
Riverton project: Five-mile and Muddy Creeks—maintenance and replacements of installed control measure, revegetative plantings, noxious weed control, installation of erosion control measures and land use management	108,500
Shoshone project: Erosion and noxious weed control and land rehabilitation	25,000
Sun River project: Revegetation, water loss and canal lining studies	15,000
Subtotal, region 6	216,000

REGION 7

North Platte project: Protective works for erosion control and ground water and seepage investigations	66,000
Kendrick project: Erosion control	4,000
Mirage Flats project: Canal and lateral protective works (prevention of runoff and sediment discharge to project structures and land)	30,000
Colorado-Big Thompson project: Land treatment surveys	2,000
Missouri River Basin project: Watershed surveys and land treatment of reservoir areas	84,000
Subtotal, region 7	186,000
General Supervision of program by Washington and Denver offices	19,000
Total	814,000

UNOBLIGATED BALANCE

Mr. JENSEN. The clerk just handed me a tabulation for the fiscal year 1955. You had available funds for operation and maintenance, $23,376,428, and obligations of $23,216,428.

Between obligations and available funds, then, it would leave $160,000.

Did you spend that $160,000? Did you spend all of that, or will you, in 1955?

Mr. GOLZÉ. That is the Bureau's estimate of the balance that will be unobligated on June 30 next, out of our O. and M. appropriation.

Mr. JENSEN. And will go back into the Treasury of the United States?

Mr. GOLZÉ. That is right, sir.

Mr. JENSEN. Mr. Chairman, you know I am not much of a spendthrift. No one could ever accuse me of that, I am sure. I have always contended however, that we spend far too small an amount of money for soil and moisture conservation on our public domain. It has caused us to spend possibly I don't know how many billions of dollars for flood control, when soil and moisture conservation is flood prevention. Oftentimes, when proper soil and moisture conservation is exercised, properly and effectively, we not only can hold the water where it falls, but we can also enrich the land and keep

the silt out of these reservoirs, which is piling up at a pretty rapid rate. That silt is valuable if it is left and conserved where the Good Lord put it, but it is a terrible detriment in the bottom of a dam.

I certainly wouldn't be in favor of the Bureau of the Budget reducing your figures of $800,000, by the sum of $300,000 for soil and moisture conservation, when I know and everybody else knows that that $300,000 may make the difference over the next 20 years of $300 million in works that we have to build for flood control, and then we lose the value of that topsoil, in addition.

Mr. EVINS. You are giving the Bureau a statement of your views in which I am sure other members of the committee concur, that they should go full speed ahead and in high gear, with this type of important work.

Mr. JENSEN. Look at the Dust Bowl, right today. That is right out in that area. Here, we are spending about 1 penny an acre for soil and moisture conservation on our public domain. It is disgraceful.

Mr. NIELSEN. You are clear that the Bureau of the Budget did not cut that specifically. That is all we could get into soil and moisture conservation under the ceilings.

Mr. JENSEN. But you did want to put in $800,000?

Mr. NIELSEN. Yes, we wanted to.

Mr. JENSEN. When you had the ceiling to work under, you had to reduce that item?

Mr. NIELSEN. That is right.

Mr. EVINS. We thank you gentlemen for your statements.

THURSDAY, MAY 12, 1955.

BONNEVILLE POWER ADMINISTRATION

WITNESSES

SIDNEY D. LARSON, DIRECTOR, DIVISION OF BUDGET AND FINANCE, DEPARTMENT OF THE INTERIOR

GEORGE W. TOMAN, ENGINEER, BONNEVILLE POWER ADMINISTRATION

LEO. W. KUDEJ, ADMINISTRATIVE OFFICER, BONNEVILLE POWER ADMINISTRATION

PROPOSED AMENDMENTS TO BUDGET FOR 1956 FOR CONSTRUCTION

Mr. EVINS. I will ask that there be inserted in the record at this point the communication from the President of the United States (H. Doc. No. 156), relative to the proposed amendments to the budget for the fiscal year 1956 relative to the Department of the Interior, Bonneville Power Administration.

(The communication referred to is as follows:)

DEPARTMENT OF THE INTERIOR

Bonneville Power Administration

Budget page	Heading	Original estimate	Change to—	Decrease
744	Construction	$16,456,000	$15,353,000	$1,103,000

The construction program for fiscal year 1955 and fiscal year 1956 included in the 1956 budget was based on schedules worked out by the Bonneville Power Administration in cooperation with its customers. Since the fall of 1954, demands for power in the Coos Bay, Moses Lake, and the Dalles areas have increased because of unforeseen circumstances resulting in need for new service items and for acceleration of other construction features of the program. A recent review of the program shows that certain other facilities can be eliminated or deferred to a later date. These adjustments as well as substantial savings in construction costs for the entire program results in the reduction of $1,103,000.

SUMMARY JUSTIFICATION DATA

Mr. EVINS. Also, we will insert in the record at this point page BP-6-A.

(The page referred to is as follows:)

Adjustments to fiscal year 1955 and fiscal year 1956 construction budget programs

Item No.	Item title	Original fiscal year 1955 program	Amended fiscal year 1955 program	Increase or (decrease)	Original fiscal year 1956 program	Amended fiscal year 1956 program	Increase or (decrease)
	Items involving program changes:						
108	Chief Joseph-Snohomish No. 3 and Chief Joseph-Covington No. 1	$4,906,000	$4,906,000		$5,123,000	$4,256,000	($867,000)
116	The Dalles area service	1,524,000	1,524,000		2,877,000	2,900,000	23,000
132	Coos Bay area service	1,271,000	1,121,000	($150,000)	645,000	680,000	35,000
134	Alvey-Reston				1,464,000	2,679,000	1,215,000
223	Moses Lake service				125,000	227,000	102,000
142	Columbia substation additions					981,000	981,000
304	Troutdale substation additions	16,000	9,000	(7,000)	44,000		(44,000)
307 / 308	Clark County and carborundum service	95,000	95,000		83,000	60,000	(23,000)
325	Tillamook service	485,000	774,000	289,000	776,000	357,000	(419,000)
705	Benton County service	66,000	50,000	(16,000)	30,000		(30,000)
810	General structures and improvements	704,000	695,000	(9,000)	251,000	251,000	
850	Portland operations facilities (network analyzer)	229,000	321,000	92,000	92,000		(92,000)
	Other adjustments:						
	Actual savings to date			(889,000)			
	Estimated additional savings			(1,113,000)			
	Increased use of system materials			(623,000)			
	Actual increased costs to date			100,000			
	Estimated additional increased costs			342,000			
	Total program	29,247,000	27,263,000	(1,984,000)	26,637,000	27,518,000	881,000

NOTE.—Program changes indicated for items 325 and 850 in fiscal year 1955 are now before the Appropriations Committee for consideration.

Mr. EVINS. We would like a general statement on the overall program and on the reductions and the increases.

GENERAL STATEMENT

Mr. TOMAN. Mr. Chairman, as Dr. Pearl, our Administrator, indicated in the course of our regular hearings on our 1956 budget request, we had under consideration at that time a review of our overall program in both 1955 and 1956. At that time we were not prepared to present to you a final statement on these revisions or amendments, and since that time we have been working with our customers

and the affected utilities and we have come up with a final amendment which, as you indicated on page BP–6–A of our submissions, itemizes the items and the effect on the program.

The net effect is a decrease in the 1956 request of $1,103,000 in new funds. The net effect on the 1955 program is a decrease of $1,984,000, and an increase in the 1956 total program of $881,000; the difference being the $1,103,000 decrease.

Most of the items have either been submitted in previous budgets, or in the original 1956 presentation.

The only new item is item 142, Columbia Substation Additions, which request is for a second large transformer bank of 150,000 kilovolt-amperes capacity at the existing Columbia substation. This is required due to an increase in the load estimates in that general area.

There are two items listed in the submission which had previously been considered, on which there has already been committee action; item 325, Tillamook service, and item 850, the Portland operations facilities. The Interior Department has, since the preparation of this amendment, obtained letters from the committee advising that the accelerations have been approved.

If you wish, I will show you on the map the major areas affected by the amendment.

ALVEY-RESTON ITEM

Mr. EVINS. Let us see if this is correct, Mr. Toman; on the Alvey-Reston item, your original request was for $1,464,000. Your amended request for the fiscal year 1956 is $2,679,000, or an increase of $1,215,000; is that correct?

Mr. TOMAN. That is correct.

Mr. EVINS. Tell us why this increase is needed.

Mr. TOMAN. This is a speedup, Mr. Chairman, on the facilities between Reston and McKinley, as indicated on the map. Our original energization schedule for that facility was in the fall of 1957. Due to rapid increase in loads in the coastal area, it was necessary to request that we be allowed to step that up to an energization in the fall of 1956.

Mr. EVINS. Did you not have that plan in your original submission and in the original budget?

Mr. TOMAN. Yes; but we had the later energization date in that submission—fall of 1957—and now our amendment calls for an earlier energization by 1 year.

Mr. EVINS. Do you feel that you need these funds requested to get power on the line a year in advance?

Mr. TOMAN. Yes. There is cooperative effort there. The California-Oregon Power Co. is building, by the fall of 1956, a short transmission line from Reston back to their Dixonville substation, which is roughly 20 miles east of there, and from that point they are bringing in power from their hydroplants on the Umpqua River.

Mr. EVINS. When the original hearings were held some few days ago, there was a statement by all that everyone concurred in these budget requests; that there was unanimity of opinion and agreement. Does the same thing apply to this increase?

Mr. TOMAN. Yes.

Mr. EVINS. With respect to the Columbia substation, you did not have any funds requested for that in your original fiscal year 1956 program.

Mr. TOMAN. No, sir.

Mr. EVINS. Now you are asking for an amended program and a total increase of $881,000. Tell us why this $881,000 is needed.

Mr. TOMAN. The original plans in this general area were these—we had been thinking in terms of requesting a second transformer for the existing Columbia substation in our 1957 budget and that was the situation at the time of our original hearings. However, since that time we have reviewed the load estimates in that area of our customers and the utilities and we now find that the transformer will be needed by April of 1957; therefore, we are requesting it in the 1956 budget.

Mr. EVINS. You must have made a pretty good showing before the Bureau of the Budget to get them to approve it. How did you get it done down there?

Mr. TOMAN. We submitted our justifications, sir, and discussed it with them, and they approved it.

Mr. EVINS. And all these items have been agreed upon. The Budget Bureau has recommended them and you say they are absolutely necessary?

Mr. TOMAN. Yes.

Mr. EVINS. We thank you very much for your appearance.

THURSDAY, MAY 12, 1955.

GENERAL INVESTIGATIONS AND CONSTRUCTION, GENERAL, CORPS OF ENGINEERS

SUPPLEMENTAL ESTIMATES, 1956

WITNESS

COL. WILLIAM E. WHIPPLE, CORPS OF ENGINEERS, UNITED STATES ARMY

Mr. EVINS. The committee will now hear Colonel Whipple, of the Corps of Engineers relative to amendments to the 1956 budget for rivers and harbors and flood control. These amendments are contained in House Document No. 156, which we shall insert at this point.

(The matter referred to follows:)

DEPARTMENT OF DEFENSE—CIVIL FUNCTIONS

DEPARTMENT OF THE ARMY

Rivers and harbors and flood control

Budget page	Heading	Original estimate	Change to—	Increase (+) or decrease (−)
615	General investigations	$3,685,000	$3,905,000	+$220,000
617	Construction, general	357,675,000	355,375,000	−2,300,000

The budget document for fiscal year 1956 included an item under the heading "Proposed for later transmission" for the Rocky Reach Reservoir on the Columbia River in Washington as a proposed partnership project. The Senate Public Works Committee recently adopted a resolution requesting the Chief of Engineers to make a survey of the portion of the Columbia River in the vicinity of the proposed Rocky Reach Dam. This survey must be completed before a partnership proposal for the Rocky Reach project can be developed. The above amendment which increases the amount requested under the "General investigations" heading by $220,000 would provide funds necessary to accomplish work on this survey during fiscal year 1956. The survey would be completed by January 1, 1957.

The proposed reduction under the heading "Construction, general," includes a decrease of $800,000 in the new obligational authority required for fiscal year 1956 on the Louisville, Ky., local flood-protection project from $1,275,000 to $475,000. The city of Louisville recently made known its desire to eliminate one section of flood wall from the construction plan. Elimination of this section will not affect the integrity of or protection provided by other sections of the Louisville local flood-protection project.

In addition, the reduction under this heading includes an amount of $1,500,000 which is based on a decrease in the requirements for fiscal year 1956 on the Folsom multiple-purpose reservoir in California from $4,150,000 to $2,650,000. A recent review of construction activities on the Folsom project, which is now well advanced, reveals that the cost estimate on which the 1956 budget request was based can now be reduced by $1,500,000.

The amendment under the heading "Department of Defense—Civil functions, rivers, and harbors and flood control, construction, general," in my letter of April 11, 1955 (H. Doc. 126, p. 8), proposed a reduction of $800,000. This amount is included in the amendments proposed herein and the reduction proposed in my letter of April 11 should be canceled.

(NOTE.—Hearings on Louisville, Ky., local flood-protection project may be found in the hearings on the Eastern Section, Public Works Appropriations, 1956.)

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS

Mr. EVINS. The first amendment is for an increase in funds for general investigations. The original estimate was for $3,685,000. The amended request is $3,905,000, or an increase of $220,000.

We will insert into the record at this point the justification statements:

(The statements referred to are as follows:)

GENERAL INVESTIGATIONS, CORPS OF ENGINEERS, CIVIL

Change in language as set forth on page 615 of 1956 budget:

For expenses necessary for the collection and study of basic information * * * to remain available until expended, [$3,685,000] *$3,905,000.* (33 U. S. C. 426–426c, 540, 541, 701; Civil Functions Appropriation Act, 1955.)

Amounts available for obligation

	In budget 1956	Revised estimate 1956	Difference
Appropriation or estimate	$3,685,000	$3,905,000	+$220,000
Reimbursements from non-Federal sources	500	500	
Reimbursements from other accounts	99,500	99,500	
Obligations incurred	3,785,000	4,005,000	+220,000

Obligations by activities

Description	In budget, 1956	Revised estimate, 1956	Difference
Direct obligations			
1. Examinations and surveys:			
(a) Navigation studies	$300,000	$300,000	
(b) Flood control studies	800,000	1,020,000	+$220,000
(c) Beach erosion cooperative studies and (d) Special studies	650,000	650,000	
2. Collection and study of basic data: (a) Stream gaging through (c) Fish and wildlife studies as set forth on p. 615 of 1956 budget	435,000	435,000	
3. Research and development	1,500,000	1,500,000	
Total direct obligations	3,685,000	3,905,000	+220,000
Obligations payable out of reimbursements from other accounts			
1. Examinations and surveys and 2. Collection and study of basic data as set forth on p. 615 of 1956 budget	100,000	100,000	
Obligations incurred	3,785,000	4,005,000	+220,000

Obligations by objects

Object classification	In budget 1956	Revised estimate 1956	Difference
CORPS OF ENGINEERS			
Summary of Personal Services			
Total number of permanent positions	248	262	+14
Full-time equivalent of all other positions	4	4	
Average number of all employees	237	251	+14
Number of employees at end of year	205	219	+14
Average salaries and grades: As set forth on page 616 of 1956 budget			
Personal service obligations:			
Permanent positions	$1,215,533	$1,269,326	+$53,793
Positions other than permanent	20,500	20,500	
Regular pay in excess of 52-week base	4,667	4,874	+207
Payment above basic rates	25,300	25,300	
Other payments for personal services: Pay and allowances to commissioned officers	10,000	10,000	
Total personal service obligations	1,276,000	1,330,000	+54,000
Direct Obligations			
01 Personal services:			
Civilian	1,257,500	1,311,500	+54,000
Pay and allowances to commissioned officers	10,000	10,000	
02 Travel	115,000	115,000	
03 Transportation of things	1,000	1,000	
04 Communication services	4,000	4,000	
05 Rents and utility services	6,000	6,000	
06 Printing and reproduction	20,000	20,000	
07 Other contractual services	200,000	200,000	
Services performed by other agencies	550,000	550,000	
Services performed by "Revolving fund, Corps of Engineers"	1,433,000	1,596,800	+163,800
08 Supplies and material	30,000	32,000	+2,000
09 Equipment	16,000	16,000	
15 Taxes and assessments	2,500	2,700	+200
Total direct obligations	3,645,000	3,865,000	+220,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services: Civilian through 09 Equipment as set forth on page 616 of 1956 budget	100,000	100,000	
Obligations incurred	3,745,000	3,965,000	+$220,000
ALLOCATION TO FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR			
As set forth on page 616 of 1956 budget	40,000	40,000	

Obligations by objects—Continued

Object classification	In budget 1956	Revised estimate 1956	Difference
SUMMARY			
Summary of Personal Services			
Total number of permanent positions	254	268	+14
Full-time equivalent of all other positions	4	4	
Average number of all employees	244	258	+14
Number of employees at end of year	211	225	+14
Average salary and grade: As set forth on page 616 of 1956 budget			
Personal service obligations:			
Permanent positions	$1,248,561	$1,302,354	+$53,793
Positions other than permanent	20,500	20,500	
Regular pay in excess of 52-week base	4,784	4,991	+207
Payment above basic rate	25,300	25,300	
Other payments for personal services: Pay and allowances to commissioned officers	10,000	10,000	
Total personal service obligations	1,309,145	1,363,145	+54,000
Direct Obligations			
01 Personal services:			
Civilian	1,290,645	1,344,645	+54,000
Pay and allowances to commissioned officers	10,000	10,000	
02 Travel	120,000	120,000	
03 Transportation of things	1,075	1,075	
04 Communication services	4,160	4,160	
05 Rents and utility services	6,500	6,500	
06 Printing and reproduction	20,300	20,300	
07 Other contractual services	200,830	200,830	
Services performed by other agencies	550,000	550,000	
Services performed by "Revolving fund, Corps of Engineers"	1,433,000	1,596,800	+163,800
08 Supplies and materials	31,100	33,100	+2,000
09 Equipment	16,000	16,000	
15 Taxes and assessments	2,550	2,750	+200
Subtotal	3,686,160	3,906,160	+220,000
Deduct charges for quarters and subsistence	1,160	1,160	
Total, direct obligations	3,685,000	3,905,000	+220,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services· Civilian through 09 equipment as set forth on pages 616 and 617 of 1956 budget	100,000	100,000	
Obligations incurred	3,785,000	4,005,000	+220,000

Analysis of expenditures

	In budget, 1956	Revised estimate, 1956	Difference
Obligated balance brought forward	$281,449	$281,449	
Obligations incurred during the year	3,785,000	4,005,000	+$220,000
Total	4,066,449	4,286,449	+220,000
Reimbursements	−100,000	−100,000	
Obligated balance carried forward	−366,449	−386,449	−20,000
Total expenditures	3,600,000	3,800,000	+200,000
Expenditures are distributed as follows:			
Out of current authorizations	3,350,000	3,550,000	+200,000
Out of prior authorizations	250,000	250,000	

1. *The purpose, program or need for which the estimate provides.*—A survey of the reach of the Columbia River between Rock Island Dam and Chief Joseph Dam requested by resolution of the Senate Public Works Committee adopted April 5, 1955. Total cost of study is estimated at $300,000.

2. *The method of determining the amount required.*—$220,000 can be profitably expended during fiscal year 1956 for necessary public hearings, preliminary studies, mapping of the dam and reservoir sites, and subsurface explorations.

3. *The reason why funds are required in fiscal year 1956.*—Previous studies indicated the desirability of including two dam and reservoir projects in this reach of the river (Wells site and Rocky Reach site) in the ultimate plan of development of the Columbia Basin. Further study of this reach appears timely in view of the interest of a county utility district in the construction of a dam at the Wells site.

The development of the power potential in this reach would utilize the storage in upstream projects and add a large block of power to offset the continuing power shortage in the Pacific Northwest. This study will form an essential part of overall planning for the Columbia River Basin.

ROCKY REACH AND WELLS DAMS

Mr. EVINS. Tell us why this increase is needed.

Colonel WHIPPLE. Sir, this increase is requested for a survey report of a portion of the Columbia River. This section of the river was investigated in House Document 531, the comprehensive plan of the Corps of Engineers, in 1948. There were two dams that were considered on that reach at that time, Rocky Reach and Wells. They were considered primarily as power projects with an installed capacity of 585,000 kilowatts for the Rocky Reach project and 392,000 for the Wells project, and costs were then estimated at about $234 million for the Rocky Reach and $158 million for the Wells.

These projects were not fully developed in survey scope. They were not recommended at that time for construction. They were, however, considered a part of the ultimate plan.

Since that time there has been a great deal of interest developed, particularly in the Rocky Reach site, and in fact a bill was introduced in the last Congress to authorize a partnership proposal for construction of that site by Chelan County PUD.

The Federal interest in these projects is twofold. One is the possible extension of navigation on the Columbia River up past this site, which has previously been considered economically not feasible, but which should be reinvestigated, we think, because of the renewed interest in that possibility.

The other major interest in this section of the river comes from the relationship of the possible projects here to other projects on the main stem of the Columbia River, both above and below. If these projects, which are primarily power, were considered only as isolated power projects, there would be very little reason for the Federal Government undertaking them. But we have downstream authorized projects covering almost the entire section of the Columbia River to the sea, as far as the fall is concerned, consisting of Priest Rapids, McNary, John Day, the Dalles, and Bonneville Dams. Up above we have the Chief Joseph and the Grand Coulee projects.

It had been originally considered that the relationship of these head projects to other projects ahead and below would be a relatively simple one.

There have been some developments though that make that a much more complex matter than had been previously thought. We have found out that that overlap between projects by which the water in one reservoir rides up on the rear face of the other one as much as 10 feet allows a much lesser loss of head between the 2 projects and a considerable increase in the amount of power to be produced. By

this means, for example, we increase the height of the Chief Joseph project about 8 feet above what it had originally been planned. That subtracted height from the Grand Coulee project, but we found that there was a net increase in power.

In addition to that, we have storage plans that involve these projects, including possibilities of Canadian storage. We know now that the power demands of the Pacific Northwest are going to outrun the potentialities of hydroelectric development within a relatively few years, say 20. At that time the Pacific Northwest will change from all hydro systems to hydrosteam, or possibly hydronuclear systems.

Whether publicly or privately owned, the engineering answer is the same—we do have to look ahead to that potentiality, because it will come well within the economic life of the projects we are now planning.

The Chelan County PUD could not possibly plan and evaluate all of those potentialities. They might well develop the sites in such a way that the discharges under those future conditions from the Chief Joseph project could not be passed down at times rapidly enough to be fully utilized by the dams down below.

There are also these relationships with Canadian storage. Proposals have been made, and in fact, statements have been made, that the United States could well obtain from Canadian storage as much as 1 million kilowatts of prime power. Those figures cannot be definitely controverted and certainly cannot be definitely accepted without a great deal more study than has been made to date. One million kilowatts of prime power is worth from $20 million to $30 million annually, or possibly more, depending on exactly what method of valuation is used. There are tremendous economic issues involved.

We have authority and funds for the next year, if the budget is reflected in appropriations, to study these relationships as pertaining to other reaches of the river. We have planning funds for Priest Rapids in the budget and there are additional planning funds for the John Day project. We have the authority to study these aspects as related to projects now under construction, including Chief Joseph and The Dalles and McNary.

So, the approval of this survey should be viewed not only with respect to the investigation of these projects as projects, but also as giving us the funds to complete the investigation from the point of view of all the main stem Columbia River projects with regard to these Canadian storage implications and the relationship of those various projects to one another.

The projects to be investigated have been referred to as the Rocky Reach and the Wells projects. That concept has come to be crystallized in the people's minds by the fact that this was a preliminary plan for the use of this section of the river which was proposed and investigated in House Document 531. It is by no means certain that that is the best use of that section of the river. There are considerable relocation problems. There are communities that would be adversely affected and there are other possibilities. There may be 3 dams instead of 2. There may be a variety of other sites, minor shifting of the sites and adjusting of the projects may be necessary. What has to be done is a complete reevaluation of the engineering potentialities of that reach to determine whether 2 dams or 3 should be built; what their characteristics are and what the overall engineering and economics of that reach of the river should be.

The estimated cost of a complete survey of that potentiality is $300,000. At a rapid rate of progress on that survey, a figure of $220,000 for the fiscal year 1956 can be advantageously used, and with $80,000 in the following fiscal year——

Mr. EVINS. The Corps of Engineers requested $3,905,000 for general investigations for the next year. Was that sum to be used wherever the Corps of Engineers felt it was needed and necessary and desirable, or was it to be pinpointed and earmarked for special studies?

Colonel WHIPPLE. It is earmarked, you might say.

Mr. EVINS. So you must have this increased amount to do a specific additional study?

Colonel WHIPPLE. That is correct.

Mr. EVINS. Now, why all the urgency and immediate need and necessity for this particular study?

Colonel WHIPPLE. I cannot say that there is anything in the nature of an emergency. We feel that these studies I have described are worthy studies.

Mr. EVINS. Why did you not include this study in your original submission to the Congress?

Colonel WHIPPLE. Sir, we had no authority for this study until fairly recently. The committee resolution asking for this study was just received on the 5th of April.

Mr. EVINS. Yes; the Senate Public Works Committee recently adopted a resolution requesting the Chief of Engineers to make a survey of the portion of the Columbia River in the vicinity of the proposed Rocky Reach Dam. This survey must be completed before a partnership proposal for the Rocky Reach project can be developed. The above amendment, which increases the amount requested under the general investigations heading by $220,000 would provide the funds necessary to accomplish work on this survey during the fiscal year 1956. The survey would be completed in January 1957. Is that correct?

Colonel WHIPPLE. Yes.

Mr. EVINS. Will you have a sufficient staff to do this additional study without doing injury or impairment to the other studies which you have planned?

Colonel WHIPPLE. Yes, we can. The divisions and the districts in the Pacific Northwest have been well staffed. They have previously carried out much larger investigations than they are now carrying out, and we have people who can be advantageously used.

NUMBER OF PROJECTS IN THE STUDY PROGRAM

Mr. EVINS. How many projects does the Corps of Engineers have in their study program?

Colonel WHIPPLE. The entire $3 million study program?

Mr. EVINS. The entire study program—how many projects?

Colonel WHIPPLE. There are 882 reports total in the active program toward which these funds could be applied.

Mr. EVINS. How many of these are considered active in the sense that you are requesting funds for them in the fiscal year 1956? How many do you consider active that you will make reports on in the fiscal year 1956?

Colonel WHIPPLE. There are 112 reports, sir, of which it is estimated that 56 will be completed during the fiscal year.

Mr. EVINS. You have 800 studies and you have how many active?

Colonel WHIPPLE. We will have 112.

Mr. EVINS. 112 active and 56 you will make reports on during the year?

Colonel WHIPPLE. Yes.

Mr. EVINS. How many of these nonactive projects were requested by law or resolution prior to April 5, 1955?

Colonel WHIPPLE. I would say all of them.

Mr. EVINS. How many in all?

Colonel WHIPPLE. 770 projects.

Mr. EVINS. 770 projects have been authorized by law or resolution prior to April 5, 1955? You are not considering them, but you are considering one recently passed; is that correct?

Colonel WHIPPLE. That is correct, sir.

Mr. EVINS. What was that figure again?

Colonel WHIPPLE. 770 projects which the Congress, by resolution or law, requested the Corps of Engineers to make studies of.

Mr. EVINS. And you are deferring them and giving priority to one just now passed; is that correct?

Colonel WHIPPLE. Sir, I cannot say that project has higher priority than that entire 770. That is not entirely correct in our view. We have a variety of projects which are of high priority that we would like to undertake.

Mr. EVINS. Did you request funds for all 770 additional studies?

Colonel WHIPPLE. No, sir.

Mr. EVINS. You just deferred them, but when this one came along it was so important, and there was such an emergency connected with it that you submitted it as an amended justification.

I will ask you, Why all the urgency?

Colonel WHIPPLE. It is very desirable, sir, when a situation involving as great interest to the United States as the Columbia River power program, and we find that there is a deficiency, a limit to the scope of previous studies and analyses which puts us in a vulnerable position.

Mr. EVINS. Are you not in a pretty vulnerable position when the Congress advises the country and the Corps of Engineers that 770 laws or resolutions have been passed requesting studies and you are not taking action on any of them, but take emergency action on one just approved? You are in a pretty vulnerable position when you are not complying with the laws and resolutions of the Congress.

Colonel WHIPPLE. Our compliance is governed by appropriations and our appropriations are governed by budget requests.

Mr. EVINS. You just testified, Colonel, that you have not asked funds for some of these projects. You have not even requested funds for them. They are in a nonactive status.

Colonel WHIPPLE. Yes, but if we apply our limited funds across the board to all of the 882 projects, we would make insufficient progress on any of them.

PRIORITY OF ROCKY REACH PROJECT

Mr. EVINS. Am I right in assuming, then, that the Corps of Engineers considered the Rocky Reach project to be top priority and more essential than any other nonactive studies including those concerning vital flood-control projects?

Colonel WHIPPLE. No, sir, I have not made that statement and I cannot so testify.

Mr. EVINS. I am asking you is that about the true situation?

Colonel WHIPPLE. No; we did not consider this to be the highest priority of all of those projects.

Mr. EVINS. It speaks for itself. The fact is that you are asking funds for this one and not for the others. You are giving priority to it.

Colonel WHIPPLE. Sir, I am sure the chairman is aware we are limited by the attitude of the Budget as to what we can request.

Mr. EVINS. Did the Corps of Engineers initiate the request for study funds for this project?

Colonel WHIPPLE. Sir, this request was initiated after conferences with the Bureau of the Budget, and indications are that a request for funds would be favorably regarded by the Bureau of the Budget.

Mr. EVINS. You still do not answer the question as to whether or not the Corps of Engineers initiated this request.

Colonel WHIPPLE. I do not mean to be evasive, but I think there is a question there as to the meaning of the words, and I tried to give a precise answer as to what happened.

Mr. EVINS. You said that there was a conference. Who initiated it?

Colonel WHIPPLE. The conference was initiated by the Bureau of the Budget.

Mr. EVINS. You did not request funds either for this either in the original budget or for this supplemental?

Colonel WHIPPLE. Yes, we did request the funds after this conference.

Mr. EVINS. But not prior thereto?

Colonel WHIPPLE. No, sir.

Mr. EVINS. You had not requested any funds originally?

Colonel WHIPPLE. That is correct, sir.

Mr. EVINS. So the priority of this project is really put on by the Bureau of the Budget?

Colonel WHIPPLE. We agreed that this is a worthy project. We agree it is of priority such as we think worthwhile, well worthwhile, to spend these funds for this purpose, so we do agree. We did not state, however, and will not state that this is a priority above all other projects, because we do not consider it to be so.

Mr. EVINS. It is not so considered by you and the Corps of Engineers, but so considered by the Bureau of the Budget?

Colonel WHIPPLE. Well, sir, if I may use an expression you used very well, Mr. Chairman, I believe the facts speak for themselves.

POWER POLICY

Mr. EVINS. I think that that answers the question.

This brings up again the power policy of the Bureau of the Budget or the executive branch. You and the people from the Bureau of Reclamation have stated time and time again that the construction of power is only incidental to flood control and navigation, and here we have a study fund requested in an unusual, hurry-up manner for an out-and-out power project. How do you reconcile these two facts?

Colonel WHIPPLE. Sir, the investigation will include the potentialities of navigation, but I will have to state that this is primarily a power project.

There are two aspects: The letter of submission that you have refers to the partnership possibilities which is, of course, pertinent, but there is also, from an engineering point of view, a very necessary relationship of these projects and the other possibilities that I mentioned, both up and down stream.

The Federal Government is in the Pacific Northwest power picture up to its neck. When proposals are made that we should pay 1 million kilowatts of prime power worth $20 million to $30 million annually for 1 piece of upstream Canadian storage, it is certainly time we looked at our hole card because this power that would be realized for this purpose would be power from Federal projects paid for by Federal funds which should not be given away unless the values to be obtained are greater than the power to be used.

Mr. EVINS. Do you interpret this as a reversal of the previous antipower policy of the Bureau of the Budget, or the administration?

Colonel WHIPPLE. Sir, I cannot confirm the existence of an antipower policy on the part of the Bureau of the Budget.

Mr. EVINS. The regulation A–47 makes the situation so difficult to make a request for funds for public-power projects that there have been none, is that not correct?

Colonel WHIPPLE. There certainly have been no new power projects given funds within a recent period.

NAVIGATION AND FLOOD CONTROL

Mr. EVINS. You stated that there were certain navigation features of this request. What features are they? What essential flood-control and navigation possibilities to the Federal Government are there in this project?

Colonel WHIPPLE. I do not believe there is any flood control that would be in there. As regards navigation, there is renewed interest in the possibility of extending navigation up the Columbia River above the presently planned head, which is near Richland, Wash., and that investigation, since this is a survey scope investigation, would investigate those navigation possibilities to see whether it is economically feasible and whether locks should be required to be placed in these dams.

Mr. EVINS. How much navigation is there on this river now?

Colonel WHIPPLE. There is about 1 million tons a year above the Bonneville Dam, and of course at the present time there are numerous obstructions in rapids, plus one antiquated canal on that section of the river.

Mr. EVINS. Navigation is really incidental in this request. This is primarily and principally a public power initiation study.

Colonel WHIPPLE. That is correct, sir.

Mr. EVINS. I shall not oppose it, I want the record to show, but I am interested in the details and the facts which have brought about this request.

JOHN DAY AND GREEN PETER PROJECTS

If the emergency need for this project is based on power, would it not be better to use these funds for planning or construction on some authorized project such as John Day, Cougar, or Green Peter Reservoirs?

Colonel WHIPPLE. Sir, the John Day and the Green Peter Reservoirs are not sufficiently planned for construction. These are general investigation funds which are not applicable to detailed planning, or to construction.

Mr. EVINS. Planning or construction of either of these projects which have previously been authorized.

Colonel WHIPPLE. I do not believe that I can answer your question. I do not believe that we have the alternative of considering that, as far as the Corps of Engineers is concerned.

Mr. EVINS. Well now, these projects have been approved, have been authorized, and you need power in the area and there is an urgency or demand to go forward with them. My question is, Could not the Corps of Engineers use the funds for these authorized projects to advance them to a higher degree of completion instead of initiating a new study at this time?

Colonel WHIPPLE. We could certainly advantageously use planning funds on Green Peter, which is not in the budget. The planning funds for John Day we think are very, very desirable. They are, of course, in the budget request in the amount of $500,000. We could even utilize construction funds on the Cougar project for the next fiscal year if it were desired to expedite it. We feel these projects are all fine projects and, other things being equal, if it is the policy to consider these projects, we think that these are fine projects that would be desirable to go ahead with.

Mr. EVINS. Since there was a Senate resolution passed to make a study, and the Bureau of the Budget initiated the conference, they in effect told the Corps of Engineers to immediately, forthwith, submit a request for funds on this partnership project, and that is the reason why you are here today requesting these funds?

Colonel WHIPPLE. Well, sir, I do think that I should add we do consider this is a worthy request and that these funds will be well utilized to make a survey of this type.

PARTICIPATION OF PRIVATE INTERESTS

Mr. EVINS. What assurances do you have that the non-Federal interests are to proceed with the construction of a dam in this area following the studies and expenditures of these funds?

Colonel WHIPPLE. We have no definite assurance, sir. The Chelan County Public Utility District has applied for a preliminary permit for a Federal Power Commission license for the Rocky Reach project. There has been a considerable amount of interest in a possible partnership proposal for the Rocky Reach project, but we have no definite assurance anything would happen.

Mr. EVINS. In other words, if the project were to only materialize and develop, then private interests would have received a free ride as far as the study is concerned and the expenditure of Federal funds for survey purposes.

Colonel WHIPPLE. Well, for study purposes, they certainly would necessarily have the advantage of Federal planning, because generally our experience indicates that the Federal Government is the only one that has the equipment to plan the interrelationships of these very large and complex systems of multiple-purpose projects.

Mr. EVINS. I think the Corps of Engineers are quite skilled and quite competent to do that, but we must not attribute unto ourselves exclusive power to do these things. Power companies could spend their own funds and employ private engineers to do that, as they do at times; do they not?

Colonel WHIPPLE. They certainly do for certain projects, although they have not done so for streams of the character of the Columbia with one exception, and as to that one exception they were not too successful.

Mr. EVINS. Where the Federal Government will make the studies and do the planning and spend their funds but derives no benefits or revenues seems to be satisfactory to them?

Colonel WHIPPLE. On the Priest Rapids project they did spend their own funds and hired a private engineering firm.

Mr. EVINS. Why cannot they do it in this instance?

Colonel WHIPPLE. They could, although I believe after the experience in the Priest Rapids case they probably would prefer to have the Government undertake it. They ran into considerable complications with Priest Rapids.

Mr. EVINS. You have had no assurances that they would reimburse the Government for the studies?

Colonel WHIPPLE. No.

Mr. EVINS. And you have no assurances that if the studies should ultimately result in an approved project they would go ahead and construct the dam at their expense?

Colonel WHIPPLE. No. They want the studies made to determine the economics and engineering feasibility, upon which a determination could be made.

Mr. EVINS. There are 770 projects.

Colonel WHIPPLE. I think the majority of those 770 projects are of considerably less urgency than this.

Mr. EVINS. But the Corps of Engineers did not even suggest the study of this project?

Colonel WHIPPLE. Under our previous ceiling we did not.

Mr. EVINS. You go out and make studies and surveys and you come forward and recommend to the Chief of Engineers and to the Bureau of the Budget and to Congress that certain studies and investigations should be made, but this is one the Corps of Engineers did not even think up themselves originally?

Colonel WHIPPLE. At the time we were making up the list of studies to be undertaken with 1956 funds, this project had not been authorized and could not have been considered in competition with others.

EFFECT OF CIRCULAR A–47 ON PLANNING OF POWER PROJECTS

Mr. EVINS. You have answered these questions very well, Colonel, but tell us again what has been the effect of Circular A–47 by the Bureau of the Budget. Tell us in understandable language what the effect has been.

Colonel WHIPPLE. I presume you mean with respect to power projects?

Mr. EVINS. Yes.

Colonel WHIPPLE. The effect of Circular A–47 of the Bureau of the Budget has been to reduce the benefit-cost ratio of power projects across the board throughout the Nation. The practices of the departments have not entirely complied with Budget Circular A–47.

Mr. EVINS. State that again, please.

Colonel WHIPPLE. The practices of the departments in this respect have not complied fully with Budget Circular A–47.

Mr. EVINS. Which departments; specify.

Colonel WHIPPLE. The agreement on cost allocation and power benefits that was entered into by the Department of the Interior, the Federal Power Commission, and the Corps of Engineers in March 1954 did not comply fully with the requirements of Budget Circular A–47.

Mr. EVINS. Do you mean that that subsequent agreement was a more relaxed agreement and not as stringent as regulation A–47?

Colonel WHIPPLE. That is correct. It did, however, have the effect generally of reducing the benefit-cost ratio 20 percent, on the average, below what it had been under the old criteria by reason of the relationship as to taxes between private and public agencies. In other words, where private companies pay large amounts of taxes in selling power, allowance is made in the benefit-cost ratio.

Mr. EVINS. The original requirements of regulation A–47 were more stringent, and then a conference was had between agencies of the Government, including the Federal Power Commission, and the requirements of A–47 were somewhat relaxed. Will you tell us what has been done by the Corps of Engineers with respect to power projects since the conference?

Colonel WHIPPLE. May I say something about the effect of the provisions of Budget Circular A–47 before I answer your question? The effect of the provisions of A–47 as modified in reducing the benefit-cost ratios of these power projects left the great majority of the power projects in our program still economically justified.

Mr. EVINS. Those that were underway?

Colonel WHIPPLE. Yes, and also those that were not yet started, such as Cougar, Green Peter, and John Day. They remain economically justified even with the full application of Budget Circular A–47. So we have had a substantial number of projects that remain economically justified under the modified criteria.

Mr. EVINS. I have no doubt of that, what I am asking is, have there been any requests given the green light, so to speak, to go forward by the Corps of Engineers?

Colonel WHIPPLE. Yes.

Mr. EVINS. What were they?

Colonel WHIPPLE. We made a recommendation on the Hartwell project.

Mr. EVINS. The Hartwell project in Georgia?

Colonel WHIPPLE. Yes. We also requested initiation of the second power project at Fort Peck, Mont.

Mr. EVINS. Part of that has previously been approved and constructed?

Colonel WHIPPLE. But to complete the installation it requires an additional installation for power and we did request funds last fall.

Mr. EVINS. Had the Hartwell project been approved by law or resolution?

Colonel WHIPPLE. Yes. That was an authorized project for which funds had been granted.

Mr. EVINS. Rocky Reach is the first new study for power that has been made since the conference we have been discussing?

Colonel WHIPPLE. I do not believe we initiated any studies of areas involving power. I will check on that and correct my answer in the record.

(The matter referred to is as follows:)

The Middle Snake report, involving two important power and flood-control projects, was initiated in fiscal year 1954 and has now been completed. Three other studies have been initiated in which power potentialities constitute a minor aspect.

Mr. EVINS. There have been none but this amended request is a request for an all-out public power study?

Colonel WHIPPLE. Yes.

PERSONNEL REQUIRED FOR THE STUDY

Mr. JENSEN. I believe you testified you had sufficient personnel to carry on this study of the Wells site and Rocky Reach site. If that is the case, why are you asking for $220,000 to carry on this study since you said you had sufficient personnel? Where would the added expense come in?

Colonel WHIPPLE. I used the term "sufficient personnel" in the sense of sufficient key personnel—skilled engineers of long experience. The Seattle district, which would undertake this, is adequately staffed with people of that type. If this study is initiated they will shift duties among the different people. There may be additional less skilled people taken on, and there would be additional people required for survey and drilling crews. We adjust those categories of people as necessary. The really critical factor is the skilled engineers. They are irreplaceable and they are the ones I referred to when I said we had sufficient personnel to undertake the study.

Mr. JENSEN. If you make that study, you say it would be necessary to hire other people such as drillers to test the geology of the dam sites?

Colonel WHIPPLE. Yes.

Mr. JENSEN. And what else did you say?

Colonel WHIPPLE. Field surveymen.

Mr. JENSEN. Do you not keep your surveymen?

Colonel WHIPPLE. Yes, we keep our surveymen but we vary them as the workload declines.

Mr. JENSEN. You do not keep them on all the time; they are seasonal?

Colonel WHIPPLE. They are to a certain extent seasonal. We release the less skilled members of survey parties, and the more skilled ones may go to another job or may do some office work. We adjust our workload as much as we can in the assignment of people in order to keep stability for our more skilled employees.

Mr. JENSEN. Reading from your justifications I read the following:

THE REASON WHY FUNDS ARE REQUIRED IN FISCAL YEAR 1956

Previous studies indicated the desirability of including two dam and reservoir projects in this reach of the river (Wells site and Rocky Reach site) in the ultimate plan of development of the Columbia Basin. Further study of this reach appears timely in view of the interest of a county utility district in the construction of a dam at the Wells site.

The development of the power potential in this reach would utilize the storage in upstream projects and add a large block of power to offset the continuing power shortage in the Pacific Northwest. This study will form an essential part of overall planning for the Columbia River Basin.

I believe you said that by bringing these two dams and power projects into being it would give you, in effect, 1 million kilowatts of power in addition to what you now have and that that power is worth how much a year?

Colonel WHIPPLE. Sir, the 1 million kilowatts I was talking about had relationship to Canadian storage. I made reference to the claim that the value of a single Canadian storage project might be 1 million kilowatts to the United States.

VALUE OF ROCKY REACH AND WELLS PROJECTS TO NORTHWEST POWER POOL

Mr. JENSEN. Let us go back to these projects. In the event they are built, what would you estimate would be the value of these two power projects to your overall Pacific Northwest power pool? Would they not only add the amount of power to your pool that you say they will in themselves produce, but act as more or less firm power for the other large hydroelectric dams on the stream? While we always consider hydropower peaking power, with a series of hydropower dams all connected together, the result is that they firm each other up. Is that right?

Colonel WHIPPLE. That is correct.

Mr. JENSEN. What value will these two be to your whole power producing facilities in the Pacific Northwest other than the amount of power they actually produce, if there is any particular advantage other than that?

Colonel WHIPPLE. They cannot contribute any appreciable amount of storage. There is a fairly well regulated flow on the Columbia River, it is a fairly reliable stream, and these projects were previously planned as a part of an all hydro system which would produce power not as peaking power but as an independent source of hydro power, of which only that portion available 100 percent of the time was given any credit in the economics of the system. That is unlike other projects, because other projects elsewhere in the country can produce power for peaking and also intermittent energy that is still valuable. Power from these projects will not contribute anything to the power downstream except insofar as they can regulate it from hour to hour or day to day.

Mr. JENSEN. That is of value, is it not?

Colonel WHIPPLE. Yes, sir; it does have a value.

Mr. JENSEN. You have 112 projects to which you are giving priority treatment in construction and in investigations and planning?

Colonel WHIPPLE. Yes, sir.

Mr. JENSEN. Is the main reason why you are asking for studies on these two projects due to the fact that in the Pacific Northwest you

have a greater demand for power and possibly a greater power shortage, so to speak, than you do in almost any other part of the United States?

Colonel WHIPPLE. I think that is a major portion of it. We certainly do have a greater demand for hydro power, but I think to complete the statement it is essential to note there is no alternative source of power because the thermo fuels are relatively so costly.

Mr. JENSEN. Most of your thermo power is produced with power fuels in the Pacific Northwest?

Colonel WHIPPLE. Yes; and there are a lot of small-scale and obsolete plants there.

Mr. JENSEN. So I take it the Army engineers, the administration, the Bureau of the Budget, are giving this project priority treatment because of the fact, first, there is no river that can produce power as cheaply as on the Columbia River; and second, because there is a potential power shortage facing the Pacific Northwest right now?

Colonel WHIPPLE. That is correct.

Mr. JENSEN. To a greater degree than any other section of the country?

Colonel WHIPPLE. I think that is correct. Insofar as we know that is correct.

Mr. EVINS. Mr. Jensen asked about three questions in one and you said "Yes." You said "Yes that power is needed." But does that yes also answer the question that the Corps of Engineers admits they can produce hydro power in the Pacific Northwest cheaper than in any other section of the country?

Colonel WHIPPLE. Generally speaking that is true.

Mr. JENSEN. Absolutely. There is no other river that has the water flow nor the fall, that the Columbia River has. In fact, in my opinion it is by far the greatest power-producing river in the world.

Mr. EVINS. Built by nature.

Mr. JENSEN. Built by nature; yes.

(Discussion off the record.)

Mr. HAND. Colonel Whipple, you are asking for how much increased funds in this supplemental?

Colonel WHIPPLE. The total survey will cost $300,000. We are requesting $220,000 for the next fiscal year.

NAVIGATION

Mr. HAND. You do not have a separate navigation project here; you will study navigation at the same time you study this hydroelectric project?

Colonel WHIPPLE. Yes.

Mr. HAND. You said it was considered not feasible before but that now there is renewed interest in this. Whose interest?

Colonel WHIPPLE. I would say there has not ever been a really thorough survey of the navigation potentialities on that stretch of the river.

Mr. HAND. You are talking about above Bonneville?

Colonel WHIPPLE. No; above Richland, Wash. In 1948 when we surveyed the Columbia River, there was comparatively much less traffic on the main stem of the Columbia River. We were a long way off then from having improved navigation on the Columbia

because the McNary Dam had just started, the Dalles Dam was not even authorized, so the reality of navigation on the Columbia was still in the future. The studies that were made more or less assumed there was no great potentiality beyond Priest Rapids. We have not made a detailed survey, but since there has been considerable interest and we are much farther advanced with navigation in the lower reaches, it seems this survey should check into that and not overlook the possibilities.

EFFECT OF CIRCULAR A–47

Mr. HAND. You started to answer a question with reference to the effect of budget regulation A–47 and you started to talk about how that gave effect to the tax situation. Is that the principal effect of it?

Colonel WHIPPLE. Budget Circular A–47 as written and literally applied requires that a hydroelectric project be compared with privately owned alternatives on the basis of comparable financing. Comparable financing, as nearly as we can determine, is interpreted to mean you would take the value of power not as its market value or what it costs the company to produce power, but you would compute what it would cost them to produce power if they paid no taxes and were able to borrow money at Federal interest rates, and that results in values a great deal lower than market values, and these are the values, under A–47, you use.

Mr. HAND. The taxpayment is a considerable factor in that?

Colonel WHIPPLE. It is larger than the interest factor. What the agencies have done in effect is to apply the tax factor as a cost and not as a correction in value. We say the value of the power should be computed in accordance with what the actual costs and actual values are, but as an economic cost you should consider in the project the loss to the community of the taxes. We have not applied it as to interest.

DEAUTHORIZATION OF PROJECTS

Mr. HAND. The chairman was talking about the projects that are active and those that are inactive and you referred to the fact that some of the inactive projects, for some reason or other, have somewhat lost their original feasibility. What progress is being made with reference to the suggested deauthorization of certain projects?

Colonel WHIPPLE. Sir, would you make it clear whether you are talking of projects or surveys?

Mr. HAND. Let us confine it to surveys now.

Colonel WHIPPLE. As to surveys, we have not reached any way to deauthorize an authorized survey. However, we do turn in one-page letter reports saying this project is not worthy of study and therefore we have not made much study of it.

Mr. HAND. In the past you were attempting to discuss this problem with the Public Works Committee to see if they would pass an omnibus deauthorization bill related to projects.

Colonel WHIPPLE. We have not found any inclination on their part, or any procedure that we can recommend to them, which would result in accomplishing that insofar as the surveys are concerned.

Mr. HAND. Then the answer to my question is that little or no progress has been made as to deauthorization either in respect to surveys or projects?

Colonel WHIPPLE. I was answering as to surveys. That is correct as to surveys.

Mr. HAND. Is it not also true as to projects?

Colonel WHIPPLE. We have found a way of handling the inactive projects which we feel in course of time and with the sanction and tacit acceptance, at least, by the committees of Congress will be effective. That is, we administratively determined a large number of projects which were of little or no merit, and another list of projects which had some merit but were not in the category where they should be considered unquestionably worthy. We segregated these categories into "deferred for further study" and "inactive" and reported those to the Public Works Committees and the Bureau of the Budget. The total cost of those is about $4 billion. We committed ourselves to saying we would not recommend construction of these projects until a special report had been made to the Public Works Committees and to the Bureau of the Budget.

Mr. HAND. That is rather a negative approach but it might work out.

Colonel WHIPPLE. Since that time that has acted as quite an effective barrier to preclude action on those projects.

CONSTRUCTION, CORPS OF ENGINEERS

Mr. EVINS. At this point in the record we will insert the justification of the Corps of Engineers concerning amendment to the budget estimate for civil functions, fiscal year 1956, involving "Construction, general." This involves reductions on 2 projects, 1 at Louisville, Ky., with a decrease of $800,000, and the other at Folsom Reservoir in California, a reduction of $1,500,000.

(The justification referred to is as follows:)

CONSTRUCTION, GENERAL, CORPS OF ENGINEERS, CIVIL

Change in language as set forth on page 617 of 1956 budget:

For the prosecution of river and harbor, flood control, shore protection, and related projects authorized by law * * * to remain available until expended [$357,675,000] *$355,375,000*: * * * and any such project shall be completed within the funds herein appropriated. (16 U. S. C. 661–666, 756; 33 U. S. C. 511–523, 540, 701; 55 Stat. 638; 66 Stat. 635, 732; Civil Functions Appropriation Act, 1955; Supplemental Appropriation Act, 1955.)

Amounts available for obligation

	In budget, 1956	Revised estimate, 1956	Difference
Appropriation or estimate	$357,675,000	$355,375,000	−$2,300,000
Unobligated balance brought forward	21,088,270	21,088,270	
Reimbursements from non-Federal sources	1,500,000	1,500,000	
Reimbursements from other accounts	500,000	500,000	
Obligations incurred	380,763,270	378,463,270	−2,300,000

Obligations by activities

Description	In budget, 1956	Revised estimate, 1956	Difference
Direct Obligations			
1. Advance engineering and design	$5,000,000	$5,000,000	
2. Navigation projects:			
(a) Channels and harbors: (1) through (37) as set forth on pp. 617 and 618 of 1956 budget	37,175,981	37,175,981	
(b) Locks and dams: (1) through (9) as set forth on p. 618 of 1956 budget	33,054,104	33,054,104	
3. Alteration of bridges over navigable waters: (a) through (d) as set forth on p. 618 of 1956 budget	3,300,000	3,300,000	
4. Beach-erosion-control projects: (a) through (h) as set forth on p. 618 of 1956 budget	2,385,000	2,385,000	
5. Flood-control projects:			
(a) Local protection:			
(I) Projects specifically authorized by Congress:			
(1) through (33) as set forth on p. 618 of 1956 budget	37,060,664	37,060,664	
(34) Louisville, Ky	1,403,955	603,955	−$800,000
(35) through (70) as set forth on p. 619 of 1956 budget	23,424,360	23,424,360	
(II) Projects not requiring specific legislation	600,000	600,000	
(IV) Snagging and clearing	300,000	300,000	
(b) Reservoirs: (1) through (25) as set forth on p. 619 of 1956 budget	24,138,339	24,138,339	
6. Multiple-purpose projects, including power:			
(1) through (3) as set forth on p. 619 of 1956 budget	432,600	432,600	
(4) Folsom Reservoir, Calif	4,150,000	2,650,000	−1,500,000
(5) through (31) as set forth on p. 619 of 1956 budget	202,938,267	202,938,267	
7. Small authorized projects	2,000,000	2,000,000	
8. Lower Columbia River fish-sanctuary program (Fish and Wildlife Service)	1,400,000	1,400,000	
Total direct obligations	378,763,270	376,463,270	−2,300,000
Obligations Payable Out of Reimbursements From Other Accounts			
1. Advance engineering and design through 6. Multiple-purpose projects, including power as set forth on p. 619 of 1956 budget	2,000,000	2,000,000	
Obligations incurred	380,763,270	378,463,270	−2,300,000

Obligations by objects

Object classification	In budget, 1956	Revised estimate, 1956	Difference
CORPS OF ENGINEERS			
Summary of Personal Services			
As set forth on pp. 621 and 622 of 1956 budget			
Direct Obligations			
01 Personal services:			
Civilian	$14,105,000	$14,105,000	
Pay and allowances to commissioned officers	20,000	20,000	
02 Travel	900,000	900,000	
03 Transportation of things	1,350,000	1,350,000	
04 Communication services	130,000	130,000	
05 Rents and utility services	360,000	360,000	
06 Printing and reproduction	83,000	83,000	
07 Other contractual services	7,100,000	7,100,000	
Services performed by other agencies	625,000	625,000	
Service performed by "Revolving fund, Corps of Engineers"	24,000,000	23,750,000	−$250,000
08 Supplies and materials	3,400,000	3,400,000	
09 Equipment	1,250,000	1,250,000	
10 Lands and structures	324,495,270	322,445,270	−2,050,000
13 Refunds, awards and indemnities	140,000	140,000	
15 Taxes and assessments	45,000	45,000	
Subtotal	378,003,270	375,703,270	−2,300,000
Deduct charges for quarters and subsistence	640,000	640,000	
Total direct obligations	377,363,270	375,063,270	−2,300,000

Obligations by objects—Continued

Object classification	In budget 1956	Revised estimate 1956	Difference
CORPS OF ENGINEERS—continued			
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services: Civilian through 10 Lands and structures as set forth on p. 622 of 1956 budget	$2,000,000	$2,000,000	
Obligations incurred	379,363,720	377,063,270	−$2,300,000
ALLOCATION TO FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR			
As set forth on p. 622 of the 1956 budget	1,400,000	1,400,000	
SUMMARY			
Summary of Personal Services			
As set forth on pp. 622 and 623 of 1956 budget			
Direct Obligations			
01 Personal services:			
Civilian	14,152,000	14,152,000	
Pay and allowances to commissioned officers	20,000	20,000	
02 Travel	902,000	902,000	
03 Transportation of things	1,350,000	1,350,000	
04 Communication services	130,100	130,100	
05 Rents and utility services	360,000	360,000	
06 Printing and reproduction	83,000	83,000	
07 Other contractual services	7,246,000	7,246,000	
Services performed by other agencies	625,000	625,000	
Services performed by "Revolving fund, Corps of Engineers"	24,000,000	23,750,000	−250,000
08 Supplies and materials	3,400,900	3,400,900	
09 Equipment	1,300,000	1,300,000	
10 Lands and structures	325,649,270	323,599,270	−2,050,000
13 Refunds, awards, and indemnities	140,000	140,000	
15 Taxes and assessments	45,000	45,000	
Subtotal	379,403,270	377,103,270	−2,300,000
Deduct charges for quarters and subsistence	640,000	640,000	
Total direct obligations	378,763,270	376,463,270	−2,300,000
Obligations Payable Out of Reimbursements From Other Accounts			
01 Personal services: Civilian through 10 lands and structures as set forth on p. 623 of 1956 budget	2,000,000	2,000,000	
Obligations incurred	380,763,270	378,463,270	−2,300,000

Analysis of expenditures

	In budget 1956	Revised estimate 1956	Difference
Obligated balance brought forward	$123,266,270	$123,266,270	
Obligations incurred during the year	380,763,270	378,463,270	−$2,300,000
Total	504,029,540	501,729,540	−2,300,000
Reimbursements	−2,000,000	−2,000,000	
Obligated balance carried forward	−157,029,540	−157,029,540	
Total expenditures	345,000,000	342,700,000	−2,300,000
Expenditures are distributed as follows:			
Out of current authorizations	225,000,000	222,700,000	−2,300,000
Out of prior authorizations	120,000,000	120,000,000	

REDUCTION IN FISCAL YEAR 1956 REQUIREMENTS FOR LOUISVILLE, KY., AND FOLSOM RESERVOIR, CALIF.

Louisville, Ky.

At the time of preparation of budget estimates, it was proposed to initiate construction of section AA floodwall in fiscal year 1956. Assurance had previously been furnished by the city of Louisville that necessary rights-of-way for this unit of work would be provided. The Corps of Engineers was advised in February 1955 that the city did not desire construction of section AA in view of difficulties in obtaining the necessary rights-of-way. Elimination of this work from the project reduces requirements for fiscal year 1956 by $800,000.

Folsom Reservoir, Calif.

At the time of preparation of the budget requirements for fiscal year 1956 a considerable amount of work remained for completion of the project and an adequate allowance for contingencies was therefore retained in the project estimate. Construction activities in recent months reveal that the contingency allowance can be reduced on this project by $1,500,000. Since funds for the completion of the project are included in the budget estimate for fiscal year 1956, a budget reduction in this amount can be effected.

EXHIBIT A

Schedule on supplemental appropriations and revised estimates

1. Present appropriation or estimate		$357, 675, 000
2. Additional amounts available		23, 088, 270
3. Total amount available		380, 763, 270
4. Apportionments:		
1st quarter		----------
2d quarter		----------
3d quarter		----------
4th quarter		----------
Budgetary reserves		----------
5. Total apportionments and reserves		----------
6. Obligations:		
1st quarter		----------
2d quarter		----------
3d quarter		----------
4th quarter		----------
7. Total actual and estimated obligations		378, 463, 270
8. Less total amount available		380, 763, 270
9. Estimated supplemental required		−2, 300, 000
10. Estimated supplemental included in latest budget		----------
11. Date needed:		
For obligation, July 1, 1955.		
For expenditure, July 1, 1955.		
12. Estimated expenditures from supplemental:	*In budget*	*Revised*
In current fiscal year	$325, 000, 000	$325, 000, 000
In next fiscal year	345, 000, 000	342, 700, 000
After next fiscal year	157, 029, 540	157, 029, 540
Total	827, 029, 540	824, 729, 540
13. Actual obligations last 3 months:		
January		$8, 977, 591
February		12, 725, 057
March		17, 661, 403

Mr. EVINS. Colonel Whipple, I think that is all. We thank you.

THURSDAY, MAY 19, 1955.

MIDDLE RIO GRANDE PROJECT, NEW MEXICO AND TEXAS

WITNESSES

DEPARTMENT OF THE INTERIOR

S. W. CROSTHWAIT, ASSISTANT COMMISSIONER
A. R. GOLZÉ, CHIEF, PROGRAM COORDINATION AND FINANCE DIVISION
G. E. TOMLINSON, ASSISTANT CHIEF, PROJECT DEVELOPMENT DIVISION
W. I. PALMER, CHIEF, CONTRACTS AND ECONOMICS BRANCH
M. B. WELT, BUDGET EXAMINER, DIVISION OF BUDGET AND FINANCE

Mr. EVINS. The subcommittee will consider this morning a proposed supplemental appropriation in the form of an amendment to the budget for the Interior Department, Bureau of Reclamation, relating to the Middle Rio Grande project.

I will ask the reporter to insert in the record House Document 161, together with the justifications.

(The matter above referred to is as follows:)

[H. Doc. No. 161, 84th Cong., 1st sess.]

COMMUNICATION FROM THE PRESIDENT OF THE UNITED STATES TRANSMITTING A PROPOSED SUPPLEMENTAL APPROPRIATION FOR THE FISCAL YEAR 1956, IN THE AMOUNT OF $3,700,000, FOR THE DEPARTMENT OF THE INTERIOR, IN THE FORM OF AN AMENDMENT TO THE BUDGET FOR SAID FISCAL YEAR

THE WHITE HOUSE,
Washington, May 18, 1955.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith for the consideration of the Congress a proposed supplemental appropriation for the fiscal year 1956, in the amount of $3,700,000, for the Department of the Interior, in the form of an amendment to the budget for said fiscal year.

The details of this proposed appropriation, the necessity therefor, and the reasons for its submission at this time are set forth in the attached letter from the Director of the Bureau of the Budget, with whose comments and observations thereon I concur.

Respectfully yours,

DWIGHT D. EISENHOWER.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., May 11, 1955.

The PRESIDENT,
The White House.

SIR: I have the honor to submit herewith for your consideration a proposed supplemental appropriation for the fiscal year 1956 in the amount of $3,700,000, for the Department of the Interior, in the form of an amendment to the budget for said fiscal year, as follows:

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

Budget page	Heading	Original estimate	Change to—	Increase
761	Construction and rehabilitation	$142,341,000	$146,041,000	$3,700,000

This proposed increase in the 1956 budget for the Bureau of Reclamation is to provide $3,700,000 of the total of $6,700,000 necessary for the purchase by the United States of the outstanding bonds of the Middle Rio Grande Conservancy District, N. Mex. The balance of the funds necessary for the bond purchase will be provided from unobligated balances and savings which have been realized on the 1955 program. This bond purchase was authorized by Public Law 516, approved May 17, 1950, as a part of the Bureau of Reclamation's plan for the rehabilitation and extension of the Middle Rio Grande project, New Mexico, and was included as a portion of the United States obligation to the district in the project repayment contract entered into on September 24, 1951.

Early purchase of the bonds by the United States is necessary to permit correction of the existing inequitable and unsound method of assessment. The improved financial condition of the district which will result from the bond purchase will assure the United States of an earlier return of the reimbursable project cost.

I recommend that the foregoing proposed supplemental appropriation be transmitted to the Congress.

Respectfully yours,

ROWLAND HUGHES,
Director of the Bureau of the Budget.

MIDDLE RIO GRANDE PROJECT, NEW MEXICO

PROJECT DATA

Authorization

The plan for the Middle Rio Grande project was approved by the Congress in the Flood Control Act of 1948 (62 Stat. 1171, 1179), and completion of the plan approved in the Flood Control Act of 1950 (64 Stat. 170, 176).

Location

The project lies in the Middle Rio Grande Valley in north-central New Mexico. It extends from the Colorado-New Mexico boundary south to the backwaters of Elephant Butte Reservoir and includes rectification of the Rio Grande in the vicinity of Truth or Consequences, N. Mex. (formerly Hot Springs).

Description

The project plan, developed jointly by the Bureau of Reclamation and the Corps of Engineers, provides for the construction of certain river control works, rehabilitation of existing works, and further development of the lands within the Middle Rio Grande Conservancy District. The Bureau of Reclamation will undertake the rehabilitation and extension of existing irrigation and drainage systems, together with channel rectification, eradication of nonbeneficial vegetation, and improvement of the main channel throughout the Espanola and Middle Valleys and the reach below Elephant Butte Reservoir to the upper end of Caballo Reservoir.

Status

The total estimated construction cost of the project has been increased from $22,506,000 to $23,306,000 (estimated total obligations $29,208,874) primarily due to an increase in cost and quantity of channel rectification work to be done in future years.

By June 1954 about 96 percent of the emergency channel construction had been completed. Two small contracts will be completed early in fiscal year 1955 and all emergency channel construction in the San Marcial area will be completed about the middle of fiscal year 1955. By June 30, 1954, construction had started on rehabilitation of the canal system and about 34 percent of the drainage construction was completed.

The contracts for rehabilitation of El Vado and Isleta Dams were awarded in September 1954. Advance planning type work for rehabilitation of the canals, laterals, and channel rectification will continue through fiscal year 1955. Operation and maintenance of completed portions of the channel rectification works was started during fiscal year 1954. In accordance with terms of the repayment contract, the Middle Rio Grande Conservancy District may request the Government to operate and maintain the irrigation system during construction. As presently planned, the project will operate and maintain the district system after February 1, 1955, using funds advanced by the district for that purpose.

Repayment

Status of repayment contract negotiations:

A repayment contract was executed with the Middle Rio Grande Conservancy District on September 24, 1951 whereby the district agrees to repay a maximum of $18 million in 40 years after completion of construction. This amount includes a maximum of $7,560,000 for acquisition of district bonds and is subject to reduction, at the option of the district, by the amount paid by the district on principal and interest after January 1, 1952. The present estimate is based on water users taking advantage of this reduction. The remainder of the costs allocated to irrigation, $1,707,000 is for service to Indian lands and is nonreimbursable.

Repayment of costs allocated to irrigation:	
Water users	$17, 140, 000. 00
Indian lands (nonreimbursable)	1, 707, 000. 00
Total	18, 847, 000. 00
Repayment costs per acre: To be repaid:	
Federal investment per acre	[1] 167. 00
From water users	167. 00
From power revenue	
Annual water user charges:	
Construction	4. 55
Operation and maintenance	3. 20
Total	7. 75
Increased net income per acre resulting from project irrigation (payment capacity)	12. 27

[1] For 100,016 acres of non-Indian lands only.

History of project development

Initial date: Planning, 1920; advanced planning, 1950; construction, 1951 (emergency channelization).

Date of functional completion of construction: Fiscal year 1959, except channel rectification in Middle Valley.

Fiscal year and amount of initial allotment of appropriations for construction, fiscal year 1952, $1,463,000.

Construction costs

Original estimated cost	$30, 179, 000
Allocation of cost:	
Irrigation	20, 506, 000
Flood control	9, 100, 000
Programs of other Interior agencies	573, 000
Present estimated construction cost	23, 306, 000
District bonds	6, 700, 000
Present estimated project costs	[1] 30, 006, 000
Allocation of cost:	
Irrigation	18, 847, 006
Flood control	11, 159, 000

[1] Includes $6,700,000 cost of acquisition of district bonds but excludes $573,000 estimated cost of programs of other Interior agencies.

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$29, 208, 874
Total obligations to June 30, 1954		4, 545, 816
Allotment, fiscal year 1955	2, 129, 000	
Contribution, State of New Mexico	10, 000	
Total obligations, fiscal year 1955		2, 139, 000
Original allotment, fiscal year 1956	3, 500, 000	
Additional allotment, fiscal year 1956	3, 700, 000	
Prior year balance available	[1] 3, 000, 000	
Total obligations, fiscal year 1956		10, 200, 000
Balance to complete		12, 324, 058

[1] From any unobligated balance of construction and rehabilitation appropriations on June 30, 1955.

Work proposed, fiscal year 1956

El Vado Dam (*$169,549*).—Construction will continue and progress payments will be made under a prime contract awarded in September 1954. Additional funds will be needed to award a contract to stabilize the left abutment of the dam. All work on this feature will be completed during the fiscal year.

Isleta diversion dam (*$32,039*).—Construction will continue and progress payments will be made under a prime contract awarded in September 1954. Two small contracts to rehabilitate the gate hoists and install a lighting system will be awarded. All work on this feature will be completed during the fiscal year.

Angostura diversion works (*$57,200*).—A construction contract to rehabilitate this feature will be awarded. All work will be completed during the fiscal year

San Acacia diversion dam (*$91,800*).—A construction contract to rehabilitate this feature will be awarded. All work will be completed during the fiscal year.

Deep wells.—Program completed in fiscal year 1955.

Canals (*$1,600,934*).—The necessary rights-of-way will be acquired and construction contracts for four settling basins on the main canals awarded and completed during the year. $150,000 is programed to extend work initiated during fiscal year 1955 in cooperation with the Corps of Engineers for construction of conveyance structures for Atrisco Canal. Two additional construction contracts for Atrisco feeder canal and Atrisco siphon will be awarded, with construction continuing into the following fiscal year. Four dredges for the settling basins will be acquired and installed during the last half of the year.

Laterals (*$207,181*).—All investigations necessary to formulate a plan of rehabilitation of the distribution system will be completed and design data for two construction contracts will be submitted to the Denver office.

Drains (*$683,597*).—Construction will continue and progress payments will be made under a contract awarded in 1954. Six additional contracts for rehabilitation of open drains will be awarded and completed during the year. Field investigations will continue on the closed drains, and design data will be submitted for three construction contracts to be awarded in fiscal year 1957.

Channelization—San Marcial area.—Program completed in fiscal year 1955.

Channel rectification—Middle Valley (*$306,900*).—The total amount represents costs of investigations during the year. These investigations will include a contract, estimated at $200,000 for prototype channelization work. This prototype is to be used to obtain information in developing a definite plan for channel rectification in the Middle Valley. Sedimentation studies and other channel investigations will continue during the year.

Channel access facilities (*$51,300*).—Heavy equipment crossings on riverside drains for access to channel and levee will be completed.

Improvements—San Marcial area.—Completed in prior years.

Channel maintenance equipment (*$111,800*).—Additional equipment required for proper maintenance of completed channel works will be purchased.

General property (*$169,700*).—Equipment necessary to adequately operate and maintain the rehabilitated irrigation system during construction will be purchased. A $70,000 contract will be awarded to construct additional facilities for the district division field offices.

Acquisition of district bonds ($6,700,000).—At the present time, the district is compelled to spend a substantial sum of money each year on the redemption of bonds and payment of interest. Funds should be provided for the purchase of these outstanding district bonds to improve the financial affairs of the district and so assure earlier return of the reimbursable project costs. In addition, assumption by the Bureau of the operation and maintenance of the irrigation facilities and coordination of this work with the operation and maintenance of the channelization facilities is dependent upon redemption of the oustanding bonds. Because of increased efficiency that would result, it is highly desirable to accomplish this at an early date.

Mr. EVINS. Do you have a general statement on the need for these funds?

Mr. CROSTHWAIT. Mr. Chairman, we have submitted for the record a general statement which I will just highlight or read, whichever you prefer.

Mr. EVINS. Suppose you read it.

GENERAL STATEMENT

Mr. CROSTHWAIT. The Middle Rio Grande Conservancy District was organized in 1925 and by 1935 had completed El Vado Dam, four diversion dams, and about 630 miles of canals and laterals with associated work. In 1929 the district financed this work by selling $8,675,000 in principal amount of 5½ percent bonds; later through the Reconstruction Finance Coproration, the State of New Mexico, and finally through private investors.

Numerous defaults occurred and relief measures, including the scaling down of interest, were ineffective. In 1946 the district refinanced through the sale of $8,026,000 in refunding 3½-percent bonds with maturity dates and all callable after August 1, 1949, at par plus accrued interest and a small premium. The district also established a guaranty fund under State law, not to exceed a 2-mill levy on the assessed valuation of property within the district, and not to exceed 15 percent of the outstanding bonded debt of the district.

The bonds to be retired after August 1, 1949, totaled $7,751,280 including premiums of $137,280. Retirements have been effected, including $400,000 retired August 4, 1954, leaving the $6,700,000 which is now outstanding. The guaranty fund now contains $1,400,000.

Public Law 516, 81st Congress (64 Stat. 170) authorized the purchase of these outstanding bonds by the United States in accordance with House Document 243, 81st Congress. A repayment contract with the district was executed September 24, 1951, providing for retirement of the bonds and acquisition of title to project works by the United States in order to protect its proposed investment in the rehabilitation of the project and insure repayment to the Treasury.

The Middle Rio Grande project was designed to afford financial relief from the interest component of the bonded debt, permit a revision in the assessment plan, and initiate rehabilitation of the physical properties on a reimbursable basis.

A repayment contract dated September 24, 1951, was negotiated with the Middle Rio Grande Conservancy District which established its maximum obligation at $18 million including cancellation of the district's outstanding bond debt of $7,560,000 on or before January 1,

1952, and a rehabilitation program to cost $10,440,000. It was established that the maximum total amount the district would be able to repay would be dependent upon both purchase of its bonds and full accomplishment of the work of rehabilitation programed. Throughout the plan, the first action recommended was cancellation of the bond debt to eliminate interest, as a measure of financial relief. To insure the continued economic feasibility of the project, in line with the $18 million maximum obligation, article 11 of the repayment contract provides that in the event the United States fails to acquire the bonds as contemplated on or before January 1, 1952, then payments made by the district on its bond account would, at the option of the district, reduce its maximum obligation of $18 million by the amount of principal and interest thus required to be paid. The repayment obligation is based upon the cost of proper rehabilitation in the amount of $10,440,000 plus the face value of the bonds. Thus any interest costs of the district will reduce the amount the United States can recover from the district under the contract, and could thereby force a commensurate reduction in the rehabilitation program. Repayment feasibility is promised upon a full development, and will be adversely affected by any change, and greatly affected by a substantial change.

Interest payments by the district since January 1952 on the outstanding obligation equal about $1 million and thus may reduce the sum available for rehabilitation by about 10 percent. If the bonds are never acquired as authorized and as contemplated in evaluating the project, total interest of about $4 million will be required to be paid by the district, and the resultant reduction in project improvement will change the entire feasibility.

Failure to purchase the bonds controls another material factor as well. The assessment procedure of the district is directly related to the outstanding bond issue in that no changes in method of assessment can be accomplished while the bonds remain outstanding. Many inequities have developed over the years. Some low value lands are so heavily overtaxed that they are no longer farmed. Other areas have been improved by millions of dollars, yet are not bearing a pro rata share of the district expense. The reclamation plan requires a correction of this situation. Its proposals anticipate the bond cancellation. Phases of the rehabilitation will be infeasible unless the assessment procedure is corrected. Continuation of work requires a determination of intent. If the original project cannot be accomplished, through delay in purchasing outstanding bonds, the United States will be required to change the construction program as it has now been scheduled for fiscal year 1956, and any such change will detrimentally affect the feasibility of the original project as authorized by the Congress.

A fuller discussion of this inequitable assessment problem appears on page 190 of House Document No. 653, 81st Congress, 2d session.

Purchase of the bonds now will save about $185,000 per year in interest charges. The repayment period to the Government begins upon completion of rehabilitation. If repayment is assumed to start in 5 years, the district will have saved over $900,000 which will be applied to repayment to the Government. In addition, the guaranty

fund of $1,400,000 will be deposited in the Treasury. Hence, the net cost of acquiring the bonds will be $5,300,000.

The estimated construction and rehabilitation fiscal year 1955 unobligated balances and savings on projects, that can be applied to the purchase of these bonds is $3 million.

Mr. EVINS. Mr. Crosthwait, that is a nicely prepared statement. Now tell the committee in your own language what you think should be done with respect to this project.

Mr. CROSTHWAIT. We think that the bonds should be acquired at this time in accordance with the plan that has been worked out. The feasibility, including the purchase of the bonds, has been worked out so that the overall benefit-cost ratio on this basis is somewhere in the neighborhood of 2.8 to 1.

This project is backed, of course, by this conservancy district which includes Albuquerque; it is well financed, and we think there will be no problem of their meeting their obligations. We think, for that reason, it is an excellent project and we should proceed with it on this basis.

Mr. EVINS. You think there will be no difficulty in them meeting their obligations, although they have not met them in the past, because of these difficulties.

Mr. CROSTHWAIT. This does place them in the position that they can do it, because much of this land, when these bonds are retired, can be reassessed so that the assessments will insure the repayment on the time basis that is provided under reclamation law.

Mr. EVINS. There is some statement here that they made an effort to reassess the lands once before, but without success. Is that an accurate statement?

Mr. CROSTHWAIT. That I think, is accurate, as long as these bonds are still outstanding. And, as I understand it, they have a very complicated procedure that would be necessary to reassess as long as the bonds are outstanding.

Mr. EVINS. Although they owe the indebtedness, they are taking no steps to insure its repayment, even to the extent of not reassessing the valuation of the land. Is not that correct?

Mr. CROSTHWAIT. Mr. Palmer, do you have an answer to that?

Mr. PALMER. I did not get the question.

Mr. EVINS. I said in view of the continuing indebtedness, no steps apparently have been taken to reassess the value of the land areas.

Mr. PALMER. Under existing New Mexico law which governed the original issuance of these bonds, there is no other way open to reassess and an equitable basis of reassessment cannot be provided without three things happening. The first would be to secure the consent of each individual bondholder, since the assessment procedure would tend to change his security; the second would be to require a complete reappraisal of all property up and down the valley that is in the district and, thirdly, to secure a basic change in the New Mexico law.

Now in the case of the contract between the Government and the district this has been accomplished, as far as the reassessment procedures are concerned. The courts of New Mexico have considered the repayment contract between the district and the Government and have confirmed that contract. This contract automatically makes it so that when you start operations under the contract, the reassess-

ment procedure is attained. In turn the contract cannot be fully operative until the bonds are retired.

Mr. EVINS. And when it was found the conservancy district was not able to pay back on schedule, or at all, it was determined to vote bonds; is that correct?

Mr. PALMER. No, sir. Much of the basic construction was financed by bonds.

Mr. EVINS. All of the bonds have been sold?

Mr. PALMER. All of the bonds have been sold. The bonds that are now out are about the third issue in the district's refinancing procedures. This matter has also gone to the Reconstruction Finance Corporation and the bonds out now are bonds that the RFC helped adjust and put in pretty good shape.

The thing I would like to stress is that the bond adjustment is an essential and integral part of this whole rehabilitation program. From the start, one of the problems they have faced was the very inequitable and very inadequate assessment procedure that was established for the conservancy district.

Mr. EVINS. How much has the valuation of the bonds declined or decreased, if at all, to this date, since they were issued?

Mr. PALMER. I cannot answer that. They did experience difficulty and finally secured essential funds through the Reconstruction Finance Corporation. The RFC bought them in at an advantage, and they sold them out at par.

Mr. EVINS. The RFC does not hold any of that paper at this time, though?

Mr. PALMER. No; they hold none at all.

Mr. EVINS. Most of them, I naturally assume, are held by private buyers of bonds?

Mr. PALMER. I think the bondholders are pretty well scattered all over the United States.

Mr. EVINS. And this is to give the Federal Government authority to go out and purchase these bonds?

Mr. PALMER. That is right, through the district.

Mr. EVINS. From the people or corporations or individuals who already hold them?

Mr. PALMER. This is to provide the money to buy the bonds, the issuance of which was authorized back before the Government entered into the contract. But the thing I was trying to stress is that the rehabilitation program contemplated for the Middle Rio Grande district is twofold in scope. One is to effect the financial adjustment necessary to reduce the interest burden those people are carrying and to permit a more equitable assessment; those two items being the principal parts of the financial aspect.

Mr. EVINS. Certainly it would be desirable from one point of view to reduce the interest on the bonds; secondly, it would be desirable to increase the assessment rate on the lands to bring in increased revenue so as to be able to pay their indebtedness. Those are two things you want?

Mr. PALMER. Those are two things on the financial side, the other half of the program being the rehabilitation and betterment of the works.

Mr. EVINS. When was the project originally constructed?

Mr. PALMER. In 1925 or 1926.

Mr. EVINS. And before you pay off the original cost, you now have to have a reconstruction program?

Mr. PALMER. That is true.

Mr. EVINS. Involving $10 million?

Mr. PALMER. $10 million. But let us consider, also, that this rehabilitation of works involves one other essential increment that is of substantial benefit to other irrigation projects on the lower river, that is, a reduction of water losses through the San Marciel area and other areas, which will aid the stability of the Government reclamation project in the lower Rio Grande.

Mr. EVINS. These bonds have already been sold to the public, to investors and to corporations, and probably insurance companies. You say they have been purchased all over the country. Why is it necessary for the Government at this time to come in and purchase these bonds?

Mr. PALMER. There are two basic reasons. One is it is impossible to change the assessment procedures with the present bonds held as they now are. That is the first big one. The second one is the reduction of interest. Bear in mind this is an area of small farms, the average size of farm in the Rio Grande Valley is about 7 acres, and you have 400,000 people living in that valley; many of them in the very, very low-income groups.

Mr. EVINS. Maybe a lot of people do not want their lands reappraised, or reassessed.

Mr. PALMER. What I started to say was that they cannot pay the interest on bonds, and at the same time pay the Government the amount we would have to have back under the rehabilitation program, and pay the cost of operation and maintenance.

Mr. EVINS. I know the committee wants to be sympathetic and the committee wants to be helpful, but I am trying to get this thing clear in my mind. I do not know if the subcommittee and the full committee is going to be able to justify this, and we have to be able to justify it for them. Suppose we approve this project, report it out, and provide so much money to get it underway and, of course, they agree to pay it back. Now they agreed to sell bonds before and the bonds have been sold, and why should we purchase them?

Mr. CROSTHWAIT. They sold those bonds before we went in on this rehabilitation program, and this rehabilitation program was based on the Government's acquisition of these bonds. In other words, they built this project originaly with bonds that they issued themselves.

Mr. EVINS. The district sold the bonds, and now you are coming in and asking the Government to appropriate some money so that they can go out and purchase the bonds that have already been sold?

Mr. CROSTHWAIT. That is correct and is an essential step in the rehabilitation of the irrigation system that will add to the stability of the project.

Mr. EVINS. Why not let the present holders of the bonds continue to hold them? Is it because you do not want them to lose money; you do not want the corporations, insurance companies, and individuals to lose money, but you do not mine the Government losing its money?

Mr. PALMER. They won't lose any money. It makes no difference whether the Government buys the bonds or not under the operation

of this New Mexico law. The bondholder is pretty secure; these are good bonds. You not only have all of these levies provided under the law to meet the bond issues and to provide operation and maintenance funds, but you also have a guaranty fund which has been accumulated on the basis of a 2 mill levy on all property in the district.

Mr. EVINS. That guaranty fund is only a very small amount. The guaranty fund is $1,400,000.

Mr. CROSTHWAIT. If these bonds are not acquired, the district will have to pay approximately $4 million in interest, and the contract that was executed with them as a result of the original authorization provided that their repayment requirement would be reduced by whatever interest they pay on these bonds. So that it would mean there would not be sufficient to complete the rehabilitation in a manner that will permit them to pay it off in accordance with the terms of the contract unless they are relieved of this $4 million interest payment. That is probably the principal reason why the bonds need to be acquired at this time.

Now there is some penalty in the recall of those bonds, which the district has agreed to pay.

Mr. GOLZÉ. To put it another way, we will only be able to do a $6 million rehabilitation program instead of a $10 million program if the bonds are not purchased at this time, because the district will have to pay off the $4 million interest on the outstanding debt.

Mr. EVINS. You probably could get along all right under the present setup if you did not now also incorporate and include the $10 million rehabilitation program; is that a correct statement?

Mr. CROSTHWAIT. It was felt that the rehabilitation necessary to put them on a basis that would permit their repayment within the contract period would require the expenditure of approximately $10 million to rehabilitate the system.

Mr. TOMLINSON. If I might add something, the irrigation system has been in existence there for many, many years. It is one of the earliest irrigated areas in the country. It goes back to the old Spanish grants. The size of the farms is very small, because under the old Spanish law, property has been divided and redivided by inheritance, which has resulted in these small-size farms with limited financial return. In many cases, the farms run back from the river in long narrow strips of land, and the farming of those small tracts placed that way has been made more difficult and expensive. This area has only about 1 inch or less of rainfall each year, and the farms stretch out in long narrow strips from the river, so that they can retain the water rights on the river.

Mr. Palmer or Mr. Crosthwait mentioned the fact that the conservancy district was organized back about 30 years ago. That was really a regrouping of the lands and water-right interests. Irrigation had been going on for many generations prior to that, and it was necessary at that time to rescue the irrigation system by improving it. And, like so many times when small groups do that on their own, they try to cut a lot of corners and do the work as cheaply and inexpensively as they can; they just patched the system up and it was not rehabilitated adequately. The result has been while they were able to limp along, they were not able really to get it on a good operating basis.

Also out there, where the rainfalls are low and the water supply is so short, unfortunately they have a lot of flat bosk, or wooded areas, where salt cedars and other water-consuming plants have grown up, and they use a lot of water. The plan worked out by the Bureau and the Corps of Engineers provides not only for a rehabilitation of the system, but a general rectification of the river channel and clearing out of the plants which waste water and are not beneficial at all. The project will clean up that and actually provide more water. The project will bring some old lands back into irrigation, which will require additional water, but that will be offset by the water regained by channel straightening and reducing evaporation and transpiration losses. So you have to have the whole thing wrapped up in one big package to get the old project back in good shape. And as Mr. Crosthwait and Mr. Palmer pointed out, when they issued these bonds they pledged that they would not make a reassessment except under certain stipulated conditions, which are very difficult to meet. This was done so that the bondholders would not lose the security by having everything reassessed at a nickel an acre, or something like that. So, as long as the bonds are outstanding, they are faced with the old assessment basis, which is very inadequate.

Suppose, for instance, there were two Albuquerque lots, one of which, when the bonds were issued, had a hotel on it and the other was vacant. As I understand it, if the second lot has now had another hotel put on it, it must be assessed on the old basis, because the old assessment basis cannot be disturbed as long as the present bonds are outstanding. But once the bonds are retired, a new assessment can be made on a more up-to-date and realistic basis which might, in some cases, result in decreasing the assessment on some property and increasing it on others commensurate with present-day values. I know of an example given in some of my discussions with local interests that went even further and assumed that if the old hotel had burned down, it would still be assessed on the higher basis; whereas the new hotel would continue to be assessed on the basis of unimproved property.

Mr. EVINS. Assuming the appropriation is granted and the full thing materializes, what assurance do we have that the properties will be reassessed?

Mr. PALMER. The basic contract between the Government and the district as confirmed by the New Mexico court automatically brings about this reassessment. This document calls for a reassessment. It has been executed by both the Government and the district and confirmed by appropriate court action but the Government has not fulfilled its end of the obligation by providing funds for buying up the bonds to permit a switchover to an equitable assessment procedure.

Mr. EVINS. In other words, you can give this committee the assurance that the reassessment program will go forward?

Mr. PALMER. Yes, sir; it will.

Mr. EVINS. That is a thing that has been talked about, but has been difficult of achievement, but in this case, you give us the assurance it will go forward?

Mr. PALMER. That is right; it will.

Mr. EVINS. Do I understand in this rehabilitation and betterment program you are going out and grub up stumps and dig up weeds that now absorb moisture? Is that correct?

Mr. TOMLINSON. In some part. You do the channel rectification and improvement and then spray the channel area with chemicals by airplane—I forget what they use—to control the salt cedars and the water-consuming plants. I do not know about the grubbing of stumps, except perhaps in the channel itself.

Mr. EVINS. We have had testimony before this committee recently that there should be some planting of vegetation to hold the land to prevent the silting of the water and washing of the land into the stream.

Mr. PALMER. That is right; but this is down on the lower part of the river where it is flat and we are deepening and working to contain the channel so that it will confine the water, rather than allowing it to flood out over the flatland.

Mr. EVINS. Do you have engineering assurance that if you remove the plants you won't have a greater destruction of the soil and more silting and filling the river?

Mr. TOMLINSON. That is a very complex problem, but we do have the best engineering judgment we can get both from inside and outside of the Bureau; but they have to test the plan and will have to work it out as they go along.

REASON FOR SUPPLEMENTAL REQUEST

Mr. EVINS. Tell the committee why you did not make this request initially in the 1956 budget request, rather than as a supplemental.

Mr. CROSTHWAIT. This was initially made by our Bureau and rejected by the Budget Bureau. We requested it in 1954, too, and again it was rejected by the Budget Bureau.

Mr. EVINS. But the Budget Bureau approved it this time?

Mr. CROSTHWAIT. Yes, sir.

Mr. EVINS. What was the reason for their reversal, or what reason did they give when they changed?

Mr. CROSTHWAIT. We do not know. They gave us no reason for it—why they had reversed their opinion on it. We felt right along it should have been done. We felt it should have been done 2 years ago and so recommended.

Mr. EVINS. You have an impression as to what brought about the reversal or change, do you not, Mr. Crosthwait?

Mr. CROSTHWAIT. Only the general reason given us, that it was not compatible with the financial program at that time.

Mr. EVINS. But it is now compatible with the financial program of the President?

Mr. CROSTHWAIT. Yes, sir.

Mr. WELT. I think the record should be corrected on the request in fiscal 1955. I do not believe that went to the Bureau of the Budget.

Mr. CROSTHWAIT. But it went to the Department?

Mr. WELT. That is correct.

Mr. EVINS. You say it was also rejected in your request to the Bureau of the Budget in fiscal 1956?

Mr. CROSTHWAIT. That is correct.

Mr. EVINS. So it has been rejected by the Bureau of the Budget twice prior to this year.

Mr. CROSTHWAIT. That is correct, twice prior to 1956.

Mr. WELT. We had it in in prior years, prior to 1955.

Mr. EVINS. But it had been rejected both in 1955 and 1956, and possibly a year prior thereto?

Mr. GOLZÉ. To clear the record on that, the Budget Bureau rejected it in 1953 and 1954. It was submitted by us to the Department in fiscal 1955. The Department again made a formal submission in 1956.

Mr. EVINS. Now you have made it as a supplemental to the original request and they have approved it this time.

Mr. CROSTHWAIT. Yes, sir.

Mr. EVINS. Will you state in your opinion what brought about the change in their attitude?

Mr. GOLZÉ. We did not make any request to initiate this supplemental. That action was taken on the Budget's own initiative.

Mr. EVINS. You would have been pleased to submit it, but declined to do so in 1955 because it had been rejected in past years; is that right?

Mr. GOLZÉ. It is general policy that any matter the Budget Bureau rejects is considered as having continued Department support unless a change has arisen. So it was, in effect, still pending with the Budget Bureau.

Mr. EVINS. My point is you would have submitted it again to the Budget Bureau, had not they rejected it in the past?

Mr. GOLZÉ. I think so. We submitted it for 1956 and we probably, in the course of events, would have submitted it for 1957.

Mr. EVINS. What is the nature of the present emergency that dictates submitting the request at the present time?

Mr. CROSTHWAIT. We feel the longer this runs without acquisition of the bonds, the larger the increase will be in the interest that will have to be paid by the District and, therefore, will reduce the amount available to rehabilitate this project and will tend to make it infeasible.

Mr. EVINS. What effect would a reduction of $1 million in the rehabilitation work have on the economic feasibility of the project?

Mr. CROSTHWAIT. I do not believe $1 million reduction would have a major effect on it. It would affect it to some degree.

Mr. PALMER. I believe the answer to that would probably run more to the features in the rehabilitation program that would be excluded if the program were curtailed by $1 million. The work which is undertaken will, of course, be completed within the funds that are available. If you lost $1 million, you would give up $1 million in essential work that has been determined to be required to effect a rehabilitation and betterment job in the district.

GUARANTY FUND

Mr. EVINS. You have a guaranty fund consisting of $1,400,000. Why has not this amount been applied to the retirement of the bonds and saving the interest charges?

Mr. PALMER. Under existing law, the only way that money can be applied is in the reduction of the bonded debt in the event of default. If the district fails to make payments as required, it is a guaranty fund. It is not available to be used to pay off current bond payments; it is to be used only as a guaranty fund.

Mr. EVINS. Can this $1.4 million be applied to the bonds at this time and a like reduction be made in the appropriation request of $3.7 million?

Mr. CROSTHWAIT. Our feeling on that is—and we have discussed this with our region and with representatives of the district—the indications are if the $5.3 million was made available for the acquisition of bonds, the $1.4 million could then be applied to the acquisition of the balance of the bonds that will remain.

Mr. EVINS. In other words, if we appropriate the full amount for the purchase of bonds, then you would use the $1.4 million.

Mr. CROSTHWAIT. If instead of appropriating $6.7 million, you authorize $5.3 million, it is our feeling that they could then take this money that is in this fund to retire the balance of the bonds, because they could then recall bonds up to the $5.3 million and all that would be left would be $1.4 million which they could apply this guaranty fund against. And I think the representatives from the district will testify to that effect, too.

Mr. PALMER. The only purpose for which the $1.4 million can be used ultimately will be to retire the bonds.

Mr. CROSTHWAIT. I think the question is why it was preferable for the Government to put up money and then have them refund to the Government the $1.4 million.

Mr. PALMER. It makes it a little easier to handle it that way. That is the main reason advanced as to why it was necessary to appropriate the full amount and then have them refund the $1.4 million.

Mr. EVINS. Where would the $1.4 million go—into the reclamation fund, or general fund?

Mr. CROSTHWAIT. It would go in the reclamation fund.

Mr. EVINS. In other words, this proposition would refinance the whole operation, provide for reassessing the valuation of the land, reduce the interest rate, rehabilitate and make betterments on much of the work in the conservancy district?

Mr. CROSTHWAIT. That is correct.

Mr. EVINS. And, in the opinion of the Bureau of Reclamation, would put it on a sound basis?

Mr. CROSTHWAIT. Yes, sir.

Mr. EVINS. And you feel would have much greater benefit to enable them to pay out in the long run?

Mr. CROSTHWAIT. Yes, sir—in addition to improving the water supply in the area and reduce the losses now experienced because of the fact much of the water is lost through evaporation.

Mr. EVINS. The Bureau has been recommending this financing and betterment program for several years, but the Bureau of the Budget has not given their assent.

Mr. CROSTHWAIT. That is correct.

CALLING THE BONDS

Mr. MURRAY. In connection with the purchase of the outstanding bond, it is contemplated that the Federal Government will turn the $3 million, or whatever the amount is, over to the irrigation district and the district would then use the funds to retire the bonds; is that correct?

Mr. PALMER. Under the mechanics of the bond program, the district has to call the bonds; they call these bonds and they do it by blocks and they make a deposit with the bank. The Government under the contract would purchase the bonds called by the district.

Mr. MURRAY. I understand that. So actually the mechanics are that the money will be given to the district.

Mr. PALMER. We will not call them.

Mr. MURRAY. We cannot call the bonds?

Mr. PALMER. No.

Mr. MURRAY. Actually what you are asking for, is it not, $3 million for the purchase of the outstanding bonds, but $3 million to turn over to the district to call the bonds?

Mr. PALMER. For the specific purpose of calling the bonds.

BENEFIT-COST RATIO

Mr. MURRAY. What would be the benefit-cost ratio without this bond purchase?

Mr. PALMER. That gets back to the question we were talking about a minute ago, without both the financial adjustment, and rehabilitation and betterment phases of the program, either part of it may not be sound.

Mr. CROSTHWAIT. My guess is that if the district is not relieved of this approximately $4 million interest payment, that it would fail to be a feasible project.

Mr. MURRAY. What would the benefit-to-cost ratio without the bond purchase be. I think this request is merely for an additional investment in the project rather than for the purchase of bonds.

Mr. CROSTHWAIT. Our best estimate is, the rehabilitation of this project, so that it is made feasible for the district—that is for the district to repay the total of $18 million, which they have contracted to do, and which includes the money necessary to retire these bonds, and also includes the expenditure and rehabilitation of approximately $10.4 million, that they would have a project which has an overall benefit-to-cost ratio of approximately 2.8.

Now if, as a part of that rehabilitation, we are able to spend $6.4 million rather than $10.4, as our studies indicate should be spent, the question of whether you could make it feasible with the smaller expenditure, is one for which we have not computed the figures. Our studies indicate that it would not be feasible, unless you did spend the $10 million, which is tabulated by features involved in the material previously submitted.

Mr. MURRAY. In other words, in order to obtain a benefit-to-cost ratio of 2.8 to 1, it is necessary to consider this $3 million as a bond purchase, rather than just an appropriation or investment to the district?

Mr. CROSTHWAIT. That is correct. Primarily, the bond purchase would be to relieve them of the interest on those bonds.

Mr. MURRAY. I have a few more questions but I wonder if I might yield to Mr. Hand as I have to answer a long-distance telephone call.

Mr. EVINS. Certainly.

ASSESSMENT PROCEDURE

Mr. HAND. I call your attention to the third paragraph on the second page of your statement, from which I quote as follows:

> The assessment procedure of the district is directly related to the outstanding bond issue in that no change in the method of assessing can be accomplished while the bond remains outstanding.
>
> No change in this method of assessment—

Just what does that mean?

Mr. PALMER. We have to go back to the conservancy court action, when they obtained an assessment of the lands benefiting from the construction program. Each individual parcel of property up and down the river, up and down the conservancy district, was appraised and this action provided the special assessment of conservancy benefits. Property values have changed, but the appraisal established by that court continues to be the base against which conservancy levies are made.

Mr. HAND. Were made——

Mr. PALMER. In 1925.

Mr. HAND. And those assessments that were made under that procedure in 1925 are immutable and permanent?

Mr. PALMER. They could be changed only by doing three things as I mentioned earlier: One, you would have to have the consent of every bondholder, because his security would be affected.

Two, you would probably have to secure a basic change in the New Mexico law; and third——

Mr. HAND. And even that basic change in the New Mexico law may not have an ex-post facto effect.

Mr. PALMER. And third, you would have to secure the consent of the property owners; you would have to go to every individual property owner.

Mr. HAND. Yes. Then, do I understand that the situation on this project, under New Mexico law, is that if parcel A was assessed for $100 at the time this conservancy district was set up, that no matter what happened, parcel A's assessment would remain at $100?

Mr. PALMER. That is correct.

Mr. HAND. So that if you built a Shamrock Hotel on parcel A's property, you could not assess the Shamrock Hotel for any purpose?

Mr. PALMER. That is generally correct. Every 10 years they do have the right to go in and reexamine the property and make assessments on the basis of the annual operation and maintenance charges but as far as the bond issue is concerned, you are absolutely right.

Mr. CROSTHWAIT. You could not assess it for this purpose.

Mr. HAND. You could assess it for general maintenance and operation?

Mr. CROSTHWAIT. Yes.

Mr. HAND. But not for the purpose of this conservancy district?

Mr. PALMER. That is right.

Mr. HAND. On the other hand, if the property already had a Shamrock Hotel on it, and the hotel burned down, it could not be reduced?

Mr. PALMER. That is correct.

Mr. HAND. Do you think the Federal Government should be responsible for any such absurd situation as that?

Mr. PALMER. We certainly hope not.

Mr. HAND. It is your position on this that, since you are stuck with that method of assessment, that we ought to buy the bonds?

Mr. PALMER. No, sir. We are saying that the program of rehabilitation that was authorized in 1950, contemplated retiring the bonds.

Mr. HAND. The proposal here is that the United States buy these bonds. If the district's new money was appropriated, they would call the bonds.

Mr. PALMER. Yes, sir.

Mr. HAND. And get possession of the bonds and then transfer the bonds to us?

Mr. PALMER. Yes, sir.

Mr. HAND. At par?

Mr. PALMER. Yes, sir.

Mr. HAND. So we are substituting the United States for whoever the present owners are?

Mr. PALMER. Yes, sir.

Mr. HAND. Now, how would that permit a change in assessment method, just because you substitute one owner for another?

Mr. PALMER. You have a repayment contract, negotiated between the water users and the Government, which has been confirmed by the New Mexico court, and one of the basic principles of the contract permits a reassessment of the property.

Mr. HAND. That, again, would involve ex post facto, changing one party for another.

Mr. PALMER. But when you buy the bonds you have fulfilled the district's obligation to the original bondholder.

Mr. CROSTHWAIT. The contract of the conservancy district to pay is substituted by the contract with the Government to pay, as a part of the rehabilitation.

Mr. HAND. I am unable to understand how you can effect a change in the assessment procedure, which has been the method for 25 years, with reference to this project.

Mr. PALMER. That is, with reference to the bonds?

Mr. HAND. Yes. The only thing that is being done with the bonds is to change owners, substitute the United States for some other owner.

Mr. PALMER. The United States being the owner of the bonds can enter into any kind of contract covering these bonds.

Mr. HAND. If we are the owners of the bonds, we can permit a change in the assessment?

Mr. PALMER. That is right; it is called for in the contract.

Mr. HAND. How about the people who are assessed? You mentioned that they would have to be consulted.

Mr. PALMER. As I stated, that has already been done through the courts.

Mr. HAND. Does not the United States propose to collect interest on these bonds?

Mr. CROSTHWAIT. These bonds would be replaced with the contract with the conservancy district to repay the amount that the Government invested in these bonds for irrigation purposes; it would not carry the interest——

Mr. HAND. Do I understand that you would buy these bonds and cancel them and substitute for the bond a contract to pay the Government?

Mr. CROSTHWAIT. That is correct. And the primary reason for acquiring these bonds is to relieve the district of the interest.

TERMS OF THE BONDS

Mr. HAND. How many of these bonds are outstanding?

Mr. PALMER. $6.7 million.

Mr. HAND. And what is the rate of interest on them?

Mr. PALMER. About 2¾ percent interest.

Mr. HAND. That is a reasonable rate of interest, is it not, in your judgment?

Mr. PALMER. Yes, sir.

Mr. HAND. That would make the annual interest charge about how much?

Mr. CROSTHWAIT. $185,000 at this time.

Mr. HAND. $185,000?

Mr. CROSTHWAIT. Yes, sir.

Mr. HAND. What is the maturity provision on the bonds?

Mr. PALMER. The due dates vary, they are all callable. I do not recall the date when the last bonds mature.

Mr. HAND. Do they mature year by year?

Mr. PALMER. I think they mature serially.

Mr. HAND. If that is true, then over a period of time, whatever that period of time is, the annual interest obligation would actually be about one-half of the $185,000, because with each payment of the principal of the bond, the interest would be reduced?

Mr. PALMER. That is correct.

Mr. HAND. So that over the life period of the bonds, the interest would be about $90,000, would it not?

Mr. PALMER. Yes, sir.

Mr. HAND. Now, is it proposed that the district cannot afford to pay $90,000 a year, and that it could afford a rehabilitation program that would cost something like $10 million extra?

Mr. PALMER. You have to take a look at the whole thing, Mr. Hand. You have a system that is badly in need of rehabilitation. Now, if this system can be revamped and made to operate more efficiently after rehabilitation and if the financial adjustment can be accomplished the district will be left in good shape. The district's position now, and the reason they came to the Government is that they are unable, with their own devices to carry the bonds and ultimately to retire them, to pay the interest on those bonds, to pay the cost of operating and maintaining District Works and to do the necessary rehabilitation and betterment work on the project. A 10 million dollar Government rehabilitation program would not be financially feasible under that kind of a plan.

If you handle the financial readjustment program, and go ahead with the rehabilitation and betterment program, then you will have a sound program and leave the district where they will be in position to take care of the total obligation.

Mr. HAND. Now, is there not some analogy here, if you forget for a moment that this is a reclamation program, and just assume out here in city X, we have $5 million worth of bonds outstanding and we are required to pay 3 percent interest on them. If we did not have to pay that interest, we could go into quite an improvement program in this city. If the United States will buy those bonds and cancel them, and substitute some sort of a contract interest free, we could spend $500,000 a year, or whatever it might be, to finance a program of improvement in that municipality. That is pretty nearly an analogous situation, is it not, to this reclamation project?

Mr. PALMER. Not quite, because as I mentioned earlier, you have a very high percentage of the total area in very small irrigated farms.

To carry out your analogy, you would have to consider all of those elements.

Mr. HAND. Suppose you transfer the city to the East, and forget reclamation, and we want to do a program which is just as important to us as irrigation is to the Albuquerque area. If the Government will buy our bonds and will cancel those bonds, we can spend that money which otherwise we would have to pay on a program for improvement in our municipality. They say, "Congressman Hand, you ought to get a bill passed which will provide that the Government buy those bonds." Now, is that not a pretty close analogy?

Mr. CROSTHWAIT. I think the analogy is pretty close. The only difference is this, that the Government has passed a law saying that it will——

Mr. HAND. The only difference between my case and the present case is that in this case the law has been passed.

Mr. CROSTHWAIT. Correct.

Mr. HAND. Thank you very much.

PROJECT ORIGINALLY BUILT BY PRIVATE CAPITAL

Mr. EVINS. As I understand it, this was not initially or originally a Bureau of Reclamation project; this was a project that was built by private capital?

Mr. CROSTHWAIT. That is correct.

Mr. PALMER. By many private companies, originally.

Mr. EVINS. And you state that if you were to have a $4 million or a $6 million betterment program, then you would question whether or not such a program would put the project on a sound basis where ultimately it could pay out. If you had to go to $10 million, you would feel that it would put you in a condition that would be sound?

Mr. CROSTHWAIT. Yes, sir.

Mr. TOMLINSON. I don't think we have a good project if we went to a $6 million program for rehabilitation instead of $10 million, in round figures. Twenty-five or thirty years ago, when they rehabilitated the project, the people did the best they could, but they could not spend enough money to put it in first-class shape. I think the end result of a reduced program now would be that in a very few years Congress would be faced with a proposal for a new relief project, to bail them out, if a half-way job is done at this time.

Mr. EVINS. In other words, it is your judgment and opinion that it is better not to do anything rather than not to do a good job?

Mr. TOMLINSON. Well, I would not say that, but certainly it would be much, much better to do it in one step rather than having to do it in two steps.

ASSESSMENT PROCEDURE

Mr. MURRAY. A lot of my questions were answered in response to questions by Mr. Hand. But I want to develop 1 or 2 other points. Is it a fact that because of this inequitable assessment procedure, resulting from this bond issue, that a lot of the property in this area is so overtaxed that the property has been on the tax delinquent roll for years.

Mr. CROSTHWAIT. Yes, sir.

Mr. MURRAY. So that some of this property, in this area, for all intents and purposes, is not on the State taxroll; is that correct?

Mr. PALMER. There is some property of that kind.

Mr. MURRAY. If this program is carried through, and the tax reassessment program is effectuated, would this tax delinquent property be again placed on the State taxrolls?

Mr. PALMER. I think so. I think that is generally true, and that is contemplated as a part of this extension and expansion of the irrigation features. While under the original assessment lands that were covered with cottonwood trees, for example, or of sandy soil, were assessed high benefits, and carried a pretty high premium, and much of that land did go delinquent, and was sold for taxes and bought in by the State or the counties.

Mr. MURRAY. One final question I would like to ask: In reference to the matter brought out by Mr. Hand, these bonds are actually going to be transferred to the United States Government. Is that not correct?

Mr. PALMER. They will be liquidated.

Mr. MURRAY. So what you are doing is investing—in other words, investing rather than purchasing bonds?

Mr. PALMER. Yes; investing in a rehabilitation program.

Mr. MURRAY. We are investing in the district rather than purchasing the bonds?

Mr. PALMER. That is correct.

Mr. MURRAY. Now one other point on which I have a final question: Are these bonds rated by any investment concern?

Mr. PALMER. They are good bonds; there are a few of them—most of them are being held——

Mr. MURRAY. I mean, do you have a Moody rating on these bonds?

Mr. PALMER. No, sir.

Mr. MURRAY. Has there been any great degree of fluctuation in the value of these bonds over the past several years?

Mr. PALMER. Not since the bonds were placed on the market after the RFC refinancing operation. The bonds have been held, and there has been very little activity in the refinancing bonds.

Mr. EVINS. Will you tell us how much private capital has been invested in this project up to this time?

Mr. TOMLINSON. I do not have the figures; we could get you some estimates, but it goes back literally over a couple of centuries. A phenomenal amount of money has gone into the works, I presume; it has been built by a succession of companies and there have been quite a few million dollars, but I do not know how much.

Mr. HAND. May I be permitted one additional question?

Mr. EVINS. Certainly.

Mr. HAND. Are these bonds registered or nonregistered bonds?

Mr. PALMER. I cannot answer your question.

Mr. HAND. Is there any information available to you as to whether the owners of the bonds have suffered any substantial loss?

Mr. PALMER. I cannot tell you that, but I think not.

Mr. HAND. Are any of the bonds in default with respect to either principal or interest?

Mr. PALMER. To the best of my knowledge, they are not; if they were in default, they would have to go in with the $1,400,000 guaranty fund.

Mr. HAND. Is there a premium paid on the bonds when they are called?

Mr. PALMER. Yes.

Mr. HAND. How much?

Mr. PALMER. 1½ percent, and that premium on call will be paid by the conservancy district; that will not be paid by the Government.

Mr. HAND. And the owners of the bond would benefit by that 1½-percent premium?

Mr. PALMER. Yes.

Mr. EVINS. If this committee approves the $3,700,000, the balance will be provided by the Middle Rio Grande Conservancy District?

Mr. CROSTHWAIT. Mr. Chairman, there would have to be an additional amount authorized from the funds that have already been appropriated, that are now in carryover status.

Mr. EVINS. In addition, how much are you requesting for betterment?

Mr. GOLZE. $3.5 million.

Mr. EVINS. In total, then, how much are you requesting that this committee appropriate, and authorize, which would also include the betterment program?

Mr. GOLZÉ. For the fiscal year 1956?

Mr. EVINS. No; I am talking about the supplemental.

Mr. CROSTHWAIT. $6.7 million.

Mr. EVINS. That is what I asked originally and you said no additional funds would be required. I am asking what would be the additional amount?

Mr. CROSTHWAIT. $3,700,000.

Mr. EVINS. Plus carryover.

Mr. CROSTHWAIT. Plus carryover of $3 million.

Mr. EVINS. $3.7 million plus $3 million?

Mr. GOLZÉ. Which makes the $6.7 million, to acquire the bonds.

Mr. EVINS. How much are you asking in addition to that for the betterment program?

Mr. CROSTHWAIT. $3.5 million.

Mr. EVINS. $3.5 million more.

Mr. CROSTHWAIT. In other words, the amount you would be appropriating would be $7.2 million and authorize the use of an additional $3 million from carryover for the purpose of acquiring these bonds.

Mr. EVINS. $7.2 million would be appropriated and $3 million carryover.

Mr. CROSTHWAIT. Yes.

Mr. EVINS. We thank you very much.

Mr. CROSTHWAIT. Thank you, Mr. Chairman.

APPENDIX

The following information was requested on page 14:

The Folsom project is located together with the Nimbus project in an area designated by the Federal Power Commission as power supply area 46. Electric Power Statistics Report No. 54–12C of the Federal Power Commission indicates that the dependable capacity, including net firm power purchases, available for supplying loads in this area on December 31, 1954 was 4,109,350 kilowatts. The peak load in December 1954 was 3,147,307 kilowatts; however, the peak load during 1954 was 3,624,905 kilowatts. In this connection it may be noted that 280,600 kilowatts of dependable capacity was added during the year, and only a part of this added capacity was available at the time of the peak load in July.

The dependable capacity scheduled to be available in power supply area 46, including 175,500 kilowatts from Folsom and Nimbus in 1955, together with the expected peak loads during the year as taken from reports to the Federal Power Commission are shown in the following tabulation:

Calendar year	Dependable capacity at end of year (kilowatts)	Peak load during year (kilowatts)
1955	4,510,850	3,902,000
1956	4,798,850	4,281,500
1957	4,858,850	4,543,300
1958	4,964,850	4,799,000

The difference between dependable capacity and peak loads is available as reserve capacity to provide for equipment outages and load growth. It may be noted that this difference based upon scheduled additions by 1958 is small compared to normal reserve requirements, and indicates that further additions to capacity not now scheduled will soon have to be made to keep supply and demand in reasonable balance.

Within power supply area 46, the power available from the Folsom and Nimbus plants is directly related to the loads served by the Pacific Gas & Electric Co. and the Central Valley project of the Bureau of Reclamation.

Data published by the Federal Power Commission as of Jan. 31, 1955, show an increase in estimated peak loads for the combined Pacific Gas & Electric Co. and city of San Francisco's load supplied through the company's system from 3,579,000 kilowatts in 1955 to 4,249,000 kilowatts in 1958, an increase of 670,000 kilowatts. The load on the Central Valley project of the Bureau of Reclamation's system operating in this area is shown as increasing from 170,000 kilowatts in 1955 to 364,000 kilowatts in 1958, or an increase of 194,000 kilowatts during the 1955–58 period. The combined P. G. & E. and Central Valley project increase during this period is 864,000 kilowatts. Excluding the Folsom and Nimbus plants, the Federal Power Commission study shows scheduled addition of 504,200 kilowatts during the 1955–58 period, or a deficiency of approximately 364,000 kilowatts. The Folsom and Nimbus plants can supply 175,500 kilowatts of this deficient capacity.

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